November 2018 DOI: https://doi.org/10.2205/ESDB-SAD-FE-02

Catalog of Solar Flare Events with X-ray Classes M1 - X>17.5
XXIV Cycle of Solar Activity (I.2009 – I0.2017)

by V.N. Ishkov, IZMIRAN, GC RAS ishkov@izmiran.ru

DATE: y m d - year, month and day of the flare event began.

TIME (UT):
to, tm, te - the begin, peak, and end times of the flare event. The begin time is defined as the first minute in a sequence of 4 minutes of a steep monotonic increase (0.1-0.8 nm = 1-12.5 keV) in X-ray flux, but if the Ha-flare begins more early, then 'to' is the start time of Ha-flare. In this case the optical importance is put by the first. The X-ray maximum is taken as the minute of the peak X-ray flux. The end time is the time when the flux level decays to a point halfway between the maximum flux and the pre-flare background level X-ray or the time of the Ha-flare, when the duration of Ha-flare more than the duration of X-ray burst.

CLASS, IMPORTANCE: X-ray/opt - X-ray class and optical importance of the flare event. The field 'opt' is blank for X-ray events with no optical correlation (no optical flare observed or no optical patrol at the time and for flares that occur in unassigned regions).
The X-ray flare classification by peak flux range (0.1-0.8 nm = 1-12.5 keV) in mks system (W.m*-2):
A - $<10^{-7}$; B - 10^{-7}-10^{-6}; C - 10^{-6}-$<10^{-5}$; M - 5.10^{-5}-$<10^{-4}$; X - $>10^{-4}$.
Importance is the corrected area of the flare in heliospheric square degrees at maximum brightness, observed in the Ha line (656.3 nm):
S - Subflare (area<2.1 deg^2);
1 - Importance 1 (2.1<area<5.1 deg^2);
2 - Importance 2 (5.2<area<12.4 deg^2);
3 - Importance 3 (12.5<area<24.7 deg^2):
4 - Importance 4 (area>24.8 deg^2).
Brightness is the relative maximum brightness of flare in Ha: F – faint; N – normal; B – brilliant.

IF: $J \cdot m^{-2}$ - the integrated X-ray flux from the start, through a maximum, and up to 0.5 maximum, in joule multiplied by m (meter) in the minus of the second degree.

COORDINATES: lt, lg, L - lt (heliographic latitude) - the distance in degrees from the solar equator.
lg (central meridian) - the distance in degrees from a line extending from the north solar rotational pole to the south solar rotational pole through the center of the solar disk as viewed from Earth.
L - (Carrington longitude) - the heliographic longitude of solar feature in the coordinate system that rotates with the Sun.
The spherical, heliographic coordinates of the flare event are determined either from the flare image in the Ha line or from the X-ray burst image, or calculated from the position of the active region,

both on the visible disk of the Sun and beyond the limb.
In the latter case, small letters are used.
According to:
https://www.ngdc.noaa.gov/stp/space-weather/solar-data/solar-features/solar-flares/h-alpha/reports/soon/,
http://legacy-www.swpc.noaa.gov/weekly/index.html) and
https://www.ngdc.noaa.gov/stp/space-weather/solar-data/solar-features/solar-flares/x-rays/goes/.

AR - SWPC NOAA-assigned solar active region number.

RADIO MHz:
245 2695 - Peak Radio Flux is the peak value above pre-burst background of associated radio bursts at frequencies of 245 and 2695 MHz in solar flux units (sfu), (1 sfu = $10^{-22} \cdot W \cdot m^{-2} \cdot Hz^{-1}$).

RADIO SWEEP - the intensity is a relative scale from 1 (minor) to 3 (major) of any sweep radio event associated with the energetic event, as follows:
Type II: Slow drift burst.
Type IV: Broadband smooth continuum burst (http://legacy-www.swpc.noaa.gov/weekly/index.html).

CME:
to, v, da, pa - Coronal Mass Ejection:
to - onset time, earliest indication of liftoff;
v - median velocity (km/s);
da - angular width (degrees);
pa - position angle measured from solar north in degrees (counter-clockwise);
CME on LASCO CME - list: https://cdaw.gsfc.nasa.gov/CME_list/;
c - preliminary CME - list: http://sidc.oma.be/cactus/catalog.php;
g - no data, g(6/06-8/01) - there are no data from 06d06h to 08d01h.

X-ray hard:
An, tm, Emax - An: R - Space sattelite RHESSI (The Reuven Ramaty High Energy Solar Spectroscopic Imager)
http://hesperia.gsfc.nasa.gov/hessidata/dbase/hessi_flare_list.txt;
n - number of hard X-ray bursts in the flare event - RHESSI analysis;
tm - time of maximum intensity of the hardest X-ray burst in this flare event;
Emax - maximal energetic band of the hardest X-ray in the flare event in keV.
g - no data, g(6/06-8/01) - there are no data from 06d06h to 08d01h.

PROTONS:
D, tmax, Ipr - D - day of Solar Proton Event flux maximum;
tmax - time of proton (E>10 MeV) maximum;
Ipr - proton flux for (E>10 MeV), given in particle flux units (1 pfu = 1 $p/(cm^2 \cdot s \cdot sr)$.
We defines the start of a proton event to be the first of 3 consecutive data points with fluxes greater than or equal to 1 pfu.

GLE - Ground Level Event.

n - solar neutrons registration.

Attendant phenomena - active dynamic phenomena, constituting the flare event:
WL - white light event;
SPY - spray;

DSF - solar filament ejection;
LPS - loop prominens system;
EPL - eruptive prominens on limb.

* - before 'to' of flares means, that all given flares are component of one flare event.

? - after hard X-ray burst means, that time of a maximum of its realization is close, but is not entered during realization flare events.

? - after CME: there are doubts about the identification of the CME.

? - afer AR: there are doubts about the identification of active region.

2010

D A T E	T I M E			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20100119	1303	1341	>1350	M2.3	.039	S25E88L053	11041					1406/0153/044/101	R2 /1341/012-025				
20100119	2023	2035	>2046	M1.7	.018	S28E88L053	11041					2058/0253/041/255?	R /2027/012-025				
20100120	0645	0727	0735	M1.0/SF	.019	S24E87L053	11041						R2 /0708/012-025				
20100120	0742	0749	0758	M1.6/SF	.012	S24E88L053	11041										
20100120	1046	1059	>1110	M1.8	.017	S24E86L053	11041					1130/0101/046/099	R /1049/012-025				
20100120	1750	1755	1810	M3.4/SF	.017	S26E81L053	11041						R /1755/012-025				
20100206	1847	1859	1933	M2.9/SN	.026	N21E15L253	11045		54			2006/0240/097/083	R /1857/012-025				
20100206	2131	2137	>2142	M1.3	.0074	N21E15L253	11045										
20100207	0220	0234	0303	M6.4/1N	.037	N21E11L253	11045	170	420		IV/2	0354/0421/360/113	R /0245/012-025				
20100208	0736	0743	>0746	M4.0	.13	N22W04L253	11045	150	290				R4 /0741/050-100				
20100208	1157	1203	>1206	M1.1	.003	N24W06L253	11045						R5 /1251/006-012				
20100208	1332	1347	>1350	M2.0	.0082	N25W08L253	11045						R /1355/006-012?				
20100208	2101	2123	2140	M1.0/2F	.004	N28W12L250	11045										
20100212	1119	1126	>1140	M8.3/1N	.019	N26E11L185	11046	350	660			1342/0509/360/044	R /1126/050-100				
20100212	1752	1808	1841	M1.1/2F	.006	N22W53L250	11045										
20100505	1713	1719	1735	M1.2/SF	.003	N42W37L225	11069					1754/0231/023/228	R /1718/025-050				
20100612	0030	0057	0113	M2.0/SN	.007	N23W43L099	11081	27000	130	II/2		0131/0486/119/294	R /0057/003-006				DSF?
20100613	0530	0539	>0544	M1.0/SF	.004	S25W84L123	11079	180		II/1		0606/0320/033/253	R /0538/003-006				
20100807	1755	1824	1955	M1.0/2F	.018	N11E34L348	11093	120	100	II/2	IV/2	1836/0871/360/094	R2 /1813/012-025				
20101016	1907	1912	1930	M2.9/1N	.064	S20W26L202	11112			II/3		2012/0350/032/274	R /1912/050-100				
20101104	2330	2358	>0012	M1.6/SF	.014	S20E76L211	11121					0126/0313/011/109	R /0010/012-025				
20101105	1243	1329	>1400	M1.0	.023	S20E69L211	11121						R2 /1326/012-025				
20101106	1527	1536	1711	M5.4/1N	.026	S19E58L211	11121	100				1612/0178/033/116	R3 /1528/006-012				

2011

DATE y m d	TIME to	TIME tm	TIME te	CLASS IMPORTANCE X-ray/opt	IF J·m^{-2}	COORDINATES lt lg L	AR	RADIO MHz 245	RADIO MHz 2695 sfu	DYNAMIC EVENT RADIO SWEEP	CME to / v /da / pa km/s	X-ray hard An / tm / Emax, keV	PROTONS E>10MeV D |tmax/Ipr	GLE	n	Attendant phenomena
20110128	0044	0103	>0110	M1.3	.093	N16W90L343	11149			II/1	0126/0606/119/290	R2 /0056/025-050	28|1625/0003			DSF
20110209	0123	0131	>0135	M1.9/SF	.0063	N17W72L172	11153									
20110213	1728	1738	1846	M6.6/1N	.040	S20E04L036	11158	9900	210	II/1 IV/2	1836/0373/276/089					
20110214	1720	1726	1804	M2.2/1N	.009	N56W18L034	11158			II/2	1824/0326/360/315	R /1728/006-012				
20110215	0144	0156	>0206	X2.2	.160	S20W15L034	11158	45000	1300	II/2 IV/2	0224/0669/360/189	R /0156/050-100	15|1115/0002			WL DSF
20110216	0132	0139	>0146	M1.0	.0051	S20W24L034	11158				0236/0411/092/035	R /0138/025-050				
20110216	0735	0744	>0755	M1.1	.0086	N10E25L331	11161					R /0748/012-025				
20110216	1419	1425	1436	M1.6/1F	.0044	S20W32L034	11158	9900	330	II/3 IV/1	g(16/13-16/21)	R /1425/025-050				
20110218	0955	1011	>1015	M6.6	.0019	S20W53L034	11158	230			1212/0350/089/272?	R2 /1011/050-100				
20110218	1023	1026	>1037	M1.0	.007	N10E02L334	11162									
20110218	1259	1303	>1306	M1.4	.0033	S20W54L034	11158					R /1303/025-050				
20110218	1400	1408	>1415	M1.0	.005	N10W01L336	11162				1712/0259/099/310?	R /1408/012-025				
20110218	2056	2104	>2114	M1.3	.0095	N10W04L336	11162					R /2103/006-012				
20110224	0723	0735	>0742	M3.5	.020	N14E87L179	11163	800	180	II/2 IV/1	0748/1186/158/096	R /0732/050-100				
20110228	1238	1252	>1303	M1.1	.0091	N24E40L164	11164	100			1348/0341/030/079	R /1250/025-050				
20110307	0500	0513	0525	M1.2/1F	.0081	N24W48L164	11164					R /0511/025-050				
20110307	0749	0754	0803	M1.5/SF	.0037	S20W78L182	11165	110								
20110307	0759	0807	0828	M1.4/1F	.010	N25W47L164	11164	100	100			R /0820/006-012				
20110307	0914	0920	0931	M1.8/SF	.0089	N23W50L164	11164		190			R /0919/025-050				
20110307	1345	1430	>1456	M1.9/SF	.062	N10E18L091	11166			II/2 IV/1	1448/0698/261/053	R3 /1409/012-025?				
20110307	1943	2012	>2058	M3.7	.120	N22W67L164	11164	5400	23000	II/3	2000/2125/360/313	R2 /2005/100-300	08|0800/0050		n	DSF
20110307	2145	2150	>2155	M1.5	.0066	S17W82L182	11165					R2 /2149/025-050				
20110308	0224	0229	0238	M1.3/1N	.0032	S18W79L182	11165					R /0229/025-050				
20110308	0337	0358	>0420	M1.5/1F	.028	S19E69L028	11171		130	II/2 IV/1	0412/0732/260/119	R /0347/025-050				
20110308	1035	1044	>1055	M5.3/1F	.034	S17W86L182	11165									
20110308	1808	1828	>1841	M4.4	.057	S17W90L182	11165				1900/0283/043/249	R /1821/050-100				DSF
20110308	1946	2016	>2119L	M1.4	.067	S17W90L182	11165				2012/0702/099/225	R3 /2018/012-025				
20110309	1035	1107	>1121	M1.7/SF	.026	N08W03L093	11166	480			1212/0315/013/235?	R2 /1051/025-050				
20110309	1317	1402	>1413	M1.7/SF	.023	N09W061093	11166			IV/1	1612/0215/018/235?	R2 /1400/025-050				
20110309	2313	2323	0016	X1.5/2B	.067	N08W09L093	11166					R2 /2322/050-100				DSF
20110310	2234	2241	>2249	M1.1/SF	.0058	N08W25L093	11166				0012/0143/014/091?	R /2240/012-015				
20110312	0433	0443	0454	M1.3/2N	.0079	N05W36L093	11166			II/1						
20110314	1930	1952	2015	M4.2/1N	.010	N18W48L062	11169				2135/0146/044/279	R2 /1951/050-100				
20110315	0018	0022	>0024	M1.0	.0018	N18W55L062	11169					R /0022/050-100				
20110323	0203	0217	>0224	M1.4	.009	S16E63L200	11176	970			0236/0772/051/131	R /0204/006-012				
20110324	1201	1207	1217	M1.0/1F	.0033	S16E43L200	11176	910			1248/0540/191/092?	R /1212/012-025				
20110325	2308	2322	>2330	M1.0/SF	.008	S12E23L200	11176	870	170	II/1 IV/1	0125/0339/012/004?	R /2319/012-025				
20110415	1702	1712	1844	M1.3/1F	.012	N14W19L338	11190		64		1936/0193/028/114	R2 /1722/012-025				
20110422	0435	0457	0522	M1.8/SN	.029	S18E43L192	11195				0624/0248/060/305?	R /0448/025-050				
20110422	1547	1553	1641	M1.2/1N	.011	S18E35L192	11195				g	R /1617/012-025				
20110528	2109	2150	>2201	M1.1/SF	.023	S20E71L037	11226					R2 /2150/012-025				
20110529	1008	1033	1133	M1.4/1F	.038	S22E65L037	11226	100		II/1	1036/0646/119/116?	R /1031/012-025				
20110607	0616	0641	0809	M2.5/2N	.044	S21W54L037	11226	6400	710	II/2 IV/2	0649/1255/360/250	R2 /0638/050-100	07|1820/0073		n	
20110614	2136	2147	>2210	M1.3/SF	.018	N15E77L165	11236				2236/0313/028/135	R /2146/050-100	17| ~00/0008			
20110727	1548	1607	1640	M1.1/1N	.013	N20E37L358	11260	140				R /1605/012-025				
20110730	0204	0209	>0212	M9.3/SF	.020	N14E35L358	11261	180	180			R /0209/050-100				
20110802	0519	0619	>0648	M1.4/1N	.039	N14W15L358	11261	620	220	II/2	0636/0712/268/285	R3 /0612/012-025	02| ~11/0002			
20110803	0308	0337	0405	M1.1/SF	.016	N17W24L358	11261					R2 /0335/025-050				
20110803	0429	0432	0504	M1.7/1F	.003	N15E08L301	11263		130			R2 /0432/050-100				

DATE			TIME		CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te		IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20110803	1317	1348	1538	M6.0/2B	.120	N16W30L358	11261	1400	180	II/1	IV/2	1400/0610/360/307	R2 /1358/012-025				
20110804	0341	0357	0505	M9.3/2B	.054	N19W36L358	11261	13000	720	II/2		0412/1315/360/298	R3 /0347/050-100	05|2150/0096			DSF
20110808	1800	1810	1855	M3.5/1B	.022	N16W61L301	11263	520	300	II/1		1812/1343/237/281?	R /1828/012-025	08|2000/0004			
20110809	0319	0354	0439	M2.5/1B	.035	N18W68L301	11263					0348/1146/141/272	R2 /0326/025-050				
20110809	0748	0805	0904	X6.9/2B	.190	N17W69L301	11263	19000	710	II/1		0812/1610/360/279	R3 /0805/025-050	09|1210/0026			
20110904	1121	1145	>1150	M3.2/SF	.018	N15W76L137	11286					1224/0203/053/287?	R /1124/012-025				
20110905	0408	0428	>0432	M1.6/SF	.022	N15W74L304	11286						R2 /0426/012-025				
20110905	0727	0758	>0806	M1.2/SF	.017	N15w90L304	11286						R2 /0757/012-025				
20110906	0135	0150	0236	M5.3/1B	.054	N14W07L224	11283	54000		II/3	IV/1	0224/0782/360/070	R /0146/025-050	06|1410/0002			
20110906	*2212	2220	0029	X2.1/2B	.058	N14W18L224	11283	64000	740	II/2	IV/3	2306/0575/360/300	R /2220/100-300	07|0715/0009			
20110907	*2232	2238	>2348	X1.8/3B	.069	N14W28L224	11283	180	1300	II/1	IV/1	2306/0792/167/269	R /2303/006-012				
20110908	1532	1546	1632	M6.7/1N	.042	N14W40L224	11283	130	91		IV/1	1636/0214/037/311	R /1544/050-100				
20110909	0601	0611	0633	M2.7/1N	.015	N16W47L224	11283	120	62	II/1		0724/0318/086/265	R /0609/050-100				
20110909	1239	1249	1305	M1.2/1F	.0078	N13W52L224	11283	150					R /1244/025-050				
20110910	0718	0740	0803	M1.1/SN	.019	N12W61L224	11283	2300				0848/0610/169/257	R /0727/025-050				
20110921	1204	1223	>1245	M1.8	.034	N11E90L279	11302						R2 /1234/012-025				
20110922	0953	1000	>1009	M1.1	.0076	N11E80L279	11302						R2 /0958/025-050				
20110922	1029	1101	1227	X1.4/2N	.450	N13E78L279	11302		970	II/2	IV/3	1048/1905/360/072	R3 /1054/025-050	26|1155/0035			
20110923	0136	0159	0239	M1.6/1N	.016	N25W63L057	11295						R /0156/012-025				
20110923	2154	2215	>2234	M1.6/SF	.030	N23W73L057	11295	190	210			2348/0337/021/326	R2 /2209/025-050				
20110923	2348	2356	>0004	M1.9/SF	.013	N11E52L279	11302	170	220	II/3		0012/0617/072/108	R /2354/025-050				
20110924	0921	0940	1010	X1.9/2B	.110	N12E60L279	11302	33000	660	II/2	IV/3	0948/1936/145/090	R2 /0940/100-300				
20110924	1233	1320	>1410	M7.1/1B	.290	N12E58L279	11302	4800	12000			1248/1915/360/078	R2 /1310/012-025				
20110924	1636	1659	>1715	M1.7	.032	N23W84L057	11295				IV/1		R /1709/012-025				
20110924	1719	1725	>1731	M3.1	.016	N12E51L279	11302						R /1722/025-050				
20110924	1759	1815	>1824	M2.8/1B	.033	N15E56L279	11302					1836/0585/059/127					
20110924	1909	1921	>1941	M3.0	.046	N14E54L279	11302	2100	270	II/2		1936/0972/360/043	R /1915/025-050			n	
20110924	2029	2036	>2042	M5.8	.024	N13E52L279	11302	130					R2 /2035/025-050				
20110924	2103	2127	2145	M1.2/SF	.007	S29W67L034	11303										
20110924	2238	2358	0015	SF/M1.0	.011	S29W68L034	11303	190			IV/2	0024/0557/132/238	R2 /2355/025-050				
20110925	0227	0233	0302	M4.4/SF	.014	N12E49L279	11302					0348/0401/008/017	R /0243/025-050				
20110925	0431	0450	0541	M7.4/2N	.096	N11E47L279	11302	320	150		IV/2	0512/0788/193/109	R /0445/025-050				
20110925	0846	0849	>0852	M3.1/1N	.0059	N15E45L279	11302					0912/0398/016/015?					
20110925	0925	0935	>0953	M1.5	.021	S29W74L034	11303	100	250			1036/0652/038/113?	R /0932/050-100				
20110925	1400	1533	1843	2B/M3.7	.016	N16E43L279	11302	1500	180			1600/0676/067/108	R5 /1533/050-100				
20110925	1651	1658	>1709	M2.2/SF	.017	S28W75L034	11303						R2 /1704/012-025				
20110926	0506	0508	0657	M4.0/1B	.014	N13E34L279	11302		360		IV/1	0624/0689/048/249?	R6 /0508/050-100				
20110926	1431	1446	1536	2B/M2.6	.026	N14E30L279	11302					1512/0420/031/082	R2 /1445/025-050				
20110928	1324	1328	1341	M1.2/1N	.0023	N13E03L279	11302		110			1424/0307/044/254	R /1340/006-012				
20110930	1852	1906	1935	1F/M1.0	.008	N08E06L246	11305	220	260	II/1		2000/0337/183/062	R /1918/012-025				
20111001	0856	0959	1039	M1.2/1N	.029	N10W06L246	11305	540	180	II/1	IV/2	0936/0448/203/315	R3 /0932/012-025				
20111002	0037	0050	0137	M3.9/1N	.028	N09W12L246	11305	270				0200/0259/103/179	R /0047/025-050				
20111002	1719	1723	1758	M1.3/SF	.0028	N09W56L279	11302					1824/0241/048/286	R /1728/012-025				
20111020	0310	0325	>0344	M1.6	.022	N18W88L121	11312				IV/1	0336/0893/193/288	R /0318/025-050				SPY
20111021	1253	1300	>1308	M1.3	.074	N15W79L051	11319			II/1	IV/1	1348/0129/058/358	R /1258/050-100				
20111022	1000	1110	>1309	M1.3	.110	N27W87L056	11314					1024/1005/360/311	R5 /1029/025-050	23|1535/0013			
20111031	1455	1508	>1527	M1.1	.015	N20E89L117	11339					1624/0404/108/026	R /1503/025-050?				DSF
20111031	1721	1808	>1855	M1.4	.050	N22E88L117	11339					2148/0184/014/045	R3 /1802/012-025				
20111102	2152	2201	2242	M4.3/SN	.045	N20E73L117	11339					g	R2 /2228/012-025				
20111103	1058	1101	1137	M2.5/SF	.020	N22E69L117	11339		54			1100/0216/011/326	R /1114/025-050				
20111103	2016	2027	2140	X1.9/2B	.100	N22E63L117	11339		620			2330/0991/360/090	R /2123/012-025	04| ~00/0004		n	

DATE	T I M E			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20111103	2328	2336	>2344	M2.1/1N	.014	N19E61L117	11339					0125/0756/360/084					
20111104	2031	2040	2058	M1.0/SF	.006	N18E46L117	11339					2324/0312/013/070	R /2045/012-025				
20111105	0308	0335	>0358	M3.7/1F	.082	N20E46L117	11339					0612/0555/038/026?	R /0324/025-050				
20111105	1025	1121	<1237	M1.1/SN	.017	N21E42L117	11339					1148/0167/018/143?	R /1116/025-050				
20111105	2031	2038	2139	M1.8/1N	.016	N21E34L117	11339					2116/0372/017/255?	R2 /2041/012-025				
20111106	0046	0103	0155	M1.2/SF	.018	N21E35L117	11339					0125/0222/141/085	R3 /0137/012-025				
20111106	0614	0635	0653	M1.4/SN	.010	N21E31L117	11339					0812/0235/041/063	R /0617/003-006				
20111109	1304	1335	>1412	M1.1/SF	.033	N24E35L065	11342	110		II/2		1336/0907/360/048	R2 /1401/012-025				DSF
20111115	0859	0912	0933	SF/M1.2	.010	N20W74L087	11348					0948/0510/084/331	R2 /0911/012-025				
20111115	1230	1248	>1250	M1.9/SF	.012	S17E30L338	11346						R /1242/025-050				
20111115	2227	2235	>2242	M1.1/1F	.0061	N20W80L087	11348					0000/0294/072/314					
20111225	1811	1816	1911	M4.0/1N	.011	S22W26L225	11387	12000	120	II/2	IV/3	1924/0239/065/231	R2 /1818/025-050	26|0135/0003			
20111226	0213	0227	0254	M1.5/1N	.012	S21W33L225	11387		230				R /0224/025-050				
20111226	2012	2030	2049	M2.3/SF	.022	S21W42L225	11387		130			2224/0260/066/299	R2 /2018/025-050				
20111229	1340	1350	1457	M1.9/1F	.015	S25E69L086	11389						R3 /1347/012-025				
20111229	2143	2151	2216	M2.0/SF	.012	S27E65L086	11389					2312/0768/177/119	R /2150/025-050				
20111230	0303	0309	>0313	M1.2/SN	.004	S27E64L086	11389										
20111231	1309	1315	1338	M2.4/SF	.007	S25E44L086	11389		150				R /1315/025-050				
20111231	1616	1626	1634	M1.5/1F	.0085	S26E42L086	11389						R /1625/025-050				

2012

DATE	T I M E			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20120114	1314	1318	>1320	M1.4	.003	N15E73L213	11401						R /1321/012-025				
20120117	0441	0453	0519	M1.0/1N	.011	N18E54L213	11401					0548/0172/026/094	g				
20120118	1904	1912	2018	M1.7/1N	.015	N17E33L213	11401					2048/0180/028/104	g				
20120119	1344	1605	2001	M3.2/SF	.270	N30E30L211	11402			II/1	IV/1	1436/1120/360/020	g	20| ~21/0002			DSF
20120123	0338	0359	0553	M8.7/2B	.200	N28W21L211	11402	4000	5100		IV/2	0400/2175/360/326		24|1530/6310		n	DSF
20120127	1737	1837	1913	X1.7/2F	.320	N27W71L211	11402	1100	810	II/3	IV/2	1827/2508/360/296	g	28|0205/0796			
20120206	1931	2000	>2017	M1.0/SF	.019	N19W60L056	11410					2148/0274/069/041?	g				
20120302	1729	1746	>1807	M3.3/SF	.049	N16E83L301	11429	51				1800/0710/206/059	R2 /1757/100-300				
20120304	1029	1052	>1216	M2.0/1N	.092	N19E61L301	11429	1400	2500		IV/2	1100/1306/360/052	R3 /1118/100-300	05| ~18/0003			
20120305	0230	0409	0643	X1.1/2B	.370	N17E52L301	11429	57000	12000			0400/1531/360/061	R3 /0256/100-300				
20120305	*1910	1916	>1921	M2.1/1B	.0078	N14E44L301	11429						g(5/04-6/02)				
20120305	*1927	1930	1950	M1.8/1B	.0027	N14E44L301	11429						g				
20120305	2226	2234	>2242	M1.3	.0073	N16E23L301	11429						g				
20120306	0022	0028	0039	M1.3/SN	.0037	N16E41L301	11429										
20120306	0136	0144	>0150	M1.2	.0059	N16E39L301	11429										
20120306	0401	0405	0419	M1.0/1N	.0026	N16E39L301	11429					0448/0536/111/022	R /0404/012-025				
20120306	0752	0755	>0800	M1.0	.0027	N17E40L301	11429					0812/0599/107/043?	g(6/06-8/01)				
20120306	1223	1241	1318	M2.1/1N	.022	N18E36L301	11429					1448/0407/046/045?	g				
20120306	2104	2111	>2114	M1.3	.0049	N16E30L301	11429					2057/0176/043/288?	g				
20120306	2249	2253	>2311	M1.0	.010	N16e30L301	11429						g				
20120307	0002	0024	0349	X5.4/3B	.670	N17E27L301	11429	300000	7200	II/2	IV/2	0024/2684/360/057	g	07|1540/6530			
20120307	0105	0114	0130	X1.3/SF	.150	N22E12L315	11430			II/2		0130/1825/360/082	g				
20120309	0322	0353	0618	M6.3/SF	.130	N15W03L301	11429	6200		II/2	IV/1	0426/0950/360/029	R7 /0428/050-100				

DATE	TIME			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20120310	1715	1744	>1830	M8.4	.260	N17W24L301	11429	1500	460		IV/2	1812/1379/360/338	R2 /1753/012-050				
20120313	1635	1741	2046	1B/M7.9	.240	N19W59L301	11429	1200	1400	II/3	IV/3	1736/1884/360/286	R8 /1645/012-025	13|1810/0469			
20120314	1508	1521	1615	M2.8/1N	.029	N14E05L220	11432	160	72			1636/0411/101/057	R /1555/012-025				
20120315	0723	0752	0834	M1.8/1F	.022	N14W03L220	11432			II/1		0924/0485/107/035					
20120317	2032	2039	2053	M1.3/SF	.0036	S20W25L211	11434	610	54	II/2		2212/0066/064/354?	R /2038/012-025				
20120323	1934	1940	>1944	M1.0	.003	S23E87L029	11445						R /1947/012-025				
20120416	1724	1745	>1800L	M1.7/BSL	.025	N13E87L068	11461					1748/1348/166/088	R /1737/025-050				DSF
20120505	1319	1323	1332	M1.0/SN	.0055	N13E82L188	11476					g(05/22-11/10)					DSF
20120505	2256	2301	>2304	M1.3/SF	.0036	N09E75L188	11476					g	R /2301/025-050				
20120506	0112	0118	>0120	M1.1	.0023	N09E77L188	11476					g	R /0118/025-050				
20120506	1741	1747	1826	M1.3/1N	.0044	N10E64L188	11476					g	R2 /1747/025-050				
20120507	1403	1431	1539	M1.9/1N	.035	S19W46L279	11471		230		IV/1	g	R2 /1426/012-025				
20120508	1302	1308	1320	M1.4/1F	.0045	N13E44L188	11476		69			g	R /1307/003-006				
20120509	1221	1232	1317	M4.7/1N	.019	N13E31L188	11476		110			g	R /1230/006-012				
20120509	1402	1408	1441	M1.8/1B	.0075	N06E22L188	11476		68			g					
20120509	2101	2105	>2109	M4.1	.012	N10E21L188	11476		240			g	R /2052/025-050				
20120510	0411	0418	0501	M5.7/2B	.021	N13E22L188	11476		690		IV/1	g	R /0418/050-100				
20120510	2020	2026	>2030	M1.7	.0056	N07E06L188	11476		100			g	R /2027/025-050				
20120517	0125	0147	0308	M5.1/1F	.099	N11W76L188	11476		540	II/3	IV/2	0148/1582/360/261	R /0141/100-300	17|0430/0255	GLE	n	
20120603	1748	1755	>1757	M3.3	.007	N16E38L201	11496	13000	320	II/2		1812/0605/180/039	R2 /1755/100-300				
20120606	1954	2006	2100	M2.1/1B	.013	S19W05L204	11494	1200		II/3	IV/3	2036/0494/173/174	R /2029/025-050				
20120609	1120	1132	>1135	M1.9	.0057	S17E73L086	11504		150			1248/0419/020/086	R /1119/006-012				
20120609	1645	1653	>1659	M1.8/SF	.0065	S17E74L086	11504					1848/0284/012/027	R /1652/050-100				
20120610	0639	0645	>0650	M1.3	.005	S15E66L086	11504		100			0824/0232/012/027					
20120613	1129	1317	1623	M1.2/1N	.075	S16E18L086	11504		260		IV/2	1326/0632/253/135	R9 /1316/003-006				
20120614	1252	1435	>1734	M2.1/1B	.12	S17E06L086	11504	840	1400		IV/2	1412/0987/360/144	R9 /1432/003-006	16|2020/0014			
20120628	1607	1612	1625	M2.4/1B	.0048	N16E45L216	11513	3300				1636/0714/104/053	R /1629/006-012				
20120629	0913	0920	0932	M2.2/1B	.0044	N17E37L216	11513	6900				0936/0904/049/025	R /0920/025-050				
20120630	1248	1252	1304	M1.0/1N	.0017	N17E21L216	11513	630				g					
20120630	1826	1832	>1834	M1.6	.0033	N17E17L216	11513					1848/0247/033/069	R /1832/025-050				
20120701	1911	1918	1929	M2.8/SB	.0085	N14E04L216	11513	1400	66			g	R /1919/025-050				
20120702	0026	0035	0050	M1.1/2B	.005	N15E01L216	11513	1100				g	R /0034/025-050				
20120702	1035	1052	1114	2B/M5.6	.027	S17E08L205	11515	590	380	II/1		1124/0313/125/183	R2 /1037/012-025				
20120702	1839	2007	2040	2B/M3.8	.018	S17E03L205	11515	8200	190			2024/0527/145/189	R /1037/050-100				DSF
20120702	2349	2356	>0003	M2.0/SF	.011	S16W02L205	11515	180				0048/0400/097/194	R /2359/012-025				DSF
20120704	0428	0437	0502	M2.3/SN	.016	S17W18L205	11515	1600	150		IV/1	0512/0381/110/201					
20120704	*0601	0955	1250	2B/M5.3	.014	S20W18L205	11515	130	79			0836/0453/085/214	R3 /0954/050-100				
	*1207	1224	>1232	2B/M2.3	.026	S20W18L205	11515	270	78			1248/0290/062/203					
20120704	1435	1440	1558	M1.3/SN	.003	S18W18L205	11515			II/1		g	R4 /1440/025-050				
20120704	1626	1639	1722	2N/M1.8	.012	N14W34L216	11513	810	200	II/1		1724/0662/360/124?	R /1637/050-100				
20120704	2203	2209	>2215	M4.6	.020	S17W21L205	11515	12000	220	II/1		2236/0556/059/205	R /2209/012-025				
20120704	2347	2355	>0002	M1.2	.0008	S17W21L205	11515				IV/1	g	R3 /2353/012-025				
20120705	0105	0110	0121	M2.4/3N	.0009	S18W26L205	11515					g	R /0131/012-025				
20120705	0235	0242	>0247	M2.2	.0097	S17W27L205	11515					0312/0463/010/234					
20120705	0325	0336	>0339	M4.7	.014	S17W28L205	11515						R /0336/050-100				
20120705	0615	0658	0743	1F/M1.1	.0085	S18W39L205	11515					0648/0738/056/224	R /0653/025-050				
20120705	0740	0745	>0748	M1.3	.004	S18W39L205	11515										
20120705	1044	1048	1118	M1.8/SN	.0032	S19W30L205	11515		68				R /1116/006-012				
20120705	1139	1144	1210	M6.2/1B	.018	S20W32L205	11515		290			1324/0783/056/224	R /1144/050-100	07|0745/0025			
20120705	1301	1318	1418	2N/M1.2	.015	S16W43L205	11515					1424/0329/010/323?	R /1314/012-025				
20120705	2009	2014	2100	M1.6/SF	.013	S18W38L205	11515		150				R4 /2038/006-012				

DATE	T I M E			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS		Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20120705	2137	2145	2243	M1.6/1N	.009	S12W46L205	11515	940	270			2200/0980/094/235	R2 /2227/012-025			
20120706	0137	0140	0156	M2.9/SN	.004	S18W42L205	11515		130				R /0140/050-100			
20120706	0230	0251	0318	1N/M1.0	.007	S11W55L205	11515					0312/1059/073/237?				
20120706	0807	0823	0925	SB/M1.5	.0053	S17W40L205	11515					1036/0660/063/222	R /0823/025-050			
20120706	1024	1029	1051	M1.8/1N	.0052	S17W42L205	11515					1124/0218/062/245				
20120706	1324	1330	1355	SF/M1.2	.0021	S20W45L205	11515		55		IV/1	g				
20120706	1848	1855	>1907	M1.3/SF	.083	S18W51L205	11515					g	R /1855/006-012			
20120706	2301	2308	>2314	X1.1	.043	S17W55L205	11515	270	520	II/3	IV/1	2324/1828/360/233		09|0430/0019		
20120707	0310	0315	>0323	M1.2/SF	.0067	S17W51L205	11515					0436/0441/055/274	R /0314/025-050			
20120707	0818	0828	>0839	M1.0	.0096	S17E69L088	11520						R /0824/025-050			
20120707	1057	1103	1117	M2.6/SF	.0083	S19W58L205	11515									
20120708	0541	0546	0643	M1.3/1F	.0060	S13W80L205	11515					0600/0192/037/229	R3 /0824/025-050			
20120708	0944	0953	1010	M1.1/1F	.0044	S21W67L205	11515					1048/0192/037/229	R /0953/025-050			
20120708	1205	1209	1229	1F/M1.4	.035	S21W69L205	11515						R /1210/050-100			
20120708	1623	1632	1646	M6.9/1N	.045	S17W74L205	11515	200	640	II/2		1654/1495/157/234		09|0130/0019		
20120709	2303	2307	>2311	M1.1	.0028	S17E38L088	11520					0100/0449/025/236				
20120710	0458	0414	0531	M1.7/SF	.0024	S16E35L088	11520									
20120710	0605	0627	0731	M2.0/1F	.033	S17E30L088	11520					0848/0252/016/131	R /0625/025-050			
20120712	1537	1649	2041	X1.4/2B	.46	S15W01L088	11520	3900	800	II/2	IV/2	1624/0657/360/229	R3 /1651/050-100	12|2225/0096		
20120714	0426	0458	0526	1F/M1.0	.0061	S16W25L096	11521					0446/0293/010/282	R /0516/006-012			
20120717	1203	1715	>1904	M1.7/1F	.0021	S28W65L088	11520					1348/0958/176/241		18|0600/0136		
20120719	0417	0558	>0656	M7.7/SF	.0024	S16W90L088	11520	260	1000	II/1	IV/1	0524/1631/360/275	R3 /0530/050-100	19| ~05/0080		
20120727	1717	1726	>1732	M2.8	.016	S22E71L185	11532	290	340	II/1	IV/1	1748/0393/114/124				
20120728	2044	2056	2115	M6.1/2N	.040	S25E54L185	11532	56000	370	II/2	IV/2	2120/0420/360/134	R /2104/012-025			
20120729	0615	0622	0744	M2.3/1N	.012	S22E49L185	11532		110		IV/2	g	R /0638/012-025			
20120730	1539	1548	1614	M1.1/SN	.0052	S22E28L173	11536									
20120806	0433	0438	>0441	M1.6	.0041	S17E90L031	11542	5800	84	II/1	IV/1	0512/0198/046/072	R /0437/050-100			
20120811	1155	1220	>1336	M1.0/2N	.025	S25W41L086	11540					1326/0173/067/208	R /1216/025-050			
20120817	1312	1319	>1321	M2.4	.0069	N19E90L232	11548		59			1336/0727/170/053	R /1319/025-050			
20120817	1708	1720	>1723	M1.0	.0061	N19E90L232	11548		140			1736/0865/174/042	R /1721/012-025			
20120818	0024	0102	0119	M5.5/SF	.029	N19E86L232	11548	460	150			0048/0986/360/043	R2 /0029/012-025			
20120818	0304	0324	0341	M1.8/SN	.0081	N19E86L232	11548	120	100			0336/0834/143/046	R /0323/050-100			
20120818	1602	1607	1615	M1.0/1N	.0038	N19E86L232	11548	56	56			1624/0734/126/043				
20120818	2246	2254	2310	M1.0/SF	.0051	N19E78L232	11548					2336/0698/118/039	R /2253/012-025			
20120818	2315	2322	2332	M1.3/SN	.009	N21E76L232	11548	220				2336/0698/118/039	R /2253/012-025			
20120830	1202	1211	>1214	M1.3	.0039	S27E85L078	11563					g				
20120906	0406	0413	>0420	M1.6	.0075	N03W60L126	11560						R /0412/025-050			
20120908	1735	1759	>1820	M1.4	.028	S14W40L005	11564						R /1801/012-025			
20120909	2150	2236	2326	M1.2/1F	.036	S15W62L005	11564						R /2241/006-012			
20120930	0427	0433	>0442	M1.3	.0069	N13W80L188	11583					0524/0146/040/289	R /0432/025-050			
20121008	1105	1117	>1123	M2.3	.011	N17E88L042	11589						R /1122/012-025			
20121009	2322	2317	>2331	M1.7	.0064	S29E86L256	11590					0036/0377/032/090	R /2323/006-012			
20121010	0451	0504	>0520	M1.0	.013	S27E73L256	11590									
20121020	1805	1814	>1819	M9.0	.035	S12E88L114	11598	280		II/1		2048/0138/074/011?	R /1813/025-050			
20121021	1946	2003	>2020	M1.3/SF	.014	S10E76L114	11598					2057/0496/243/090	R /2002/025-050			
20121022	1838	1851	>1938	M5.0/1F	.034	S12E61L114	11598						R /1914/012-025			
20121023	0313	0317	>0321	X1.8	.049	S13E58L114	11598	620		II/1			R /0317/050-100			
20121108	0208	0223	>0255	M1.7	.030	N13E89L233	11611	110		II/3		0236/0855/360/046	R /0217/025-050	09|0420/0003		
20121111	0211	0233	>0252	M1.0	.017	N13E89L193	11614			II/1		0248/0407/068/063	R /0230/012-025			
20121112	2313	2328	>2333	M2.0	.010	S25E47L207	11613			II/2		0055/0611/045/138	R /2327/025-050			
20121113	0158	0204	>0206	M6.0	.014	S25E46L207	11613	610				0224/0851/141/141				

DATE	TIME	CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS		Attendant
y m d	to tm te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20121113	0542 0550 >0554	M2.5	.0093	S26E44L207	11613	110				0600/0797/119/138	R /0548/050-100			
20121113	2050 2054 2109	M2.8/SN	.0061	S22E31L207	11613	1100	220			2136/0432/186/102				
20121114	0359 0404 >0407	M1.1	.0025	S23E27L207	11613	220				0424/0478/094/107?	R /0404/025-050	15|0155/0009		
20121120	1236 1241 >1246	M1.7	.0063	n06e20L136	11618	40	64				R /1241/100-300			
20121120	1921 1928 >2010	M1.6/SN	.0052	N06E25L136	11618	130	90			2255/0205/067/064?	R2 /1926/025-050			
20121121	0645 0656 0722	M1.4/1N	.012	N06E10L136	11618		58	II/2	IV/1	0838/0410/142/068	R /0654/025-050			
20121121	1510 1530 >1538	M3.5/	.026	N06E01L136	11618			II/2	IV/2	1600/0529/360/194	R /1556/025-050			
20121127	1552 1557 1603	M1.6/SF	.0053	N05W73L136	11618					0836/0394/076/282	R /1824/006-012			
20121127	2105 2126 2142	M1.0/SF	.0054	S14W41L087	11620						R3 /2125/025-050			
20121128	2120 2136 2200	M2.2/SN	.019	S14W57L087	11620						R2 /2134/025-050			DSF

2013

DATE	TIME	CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS		Attendant
y m d	to tm te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20130105	0926 0931 >0934	M1.7	.0042	N20E88L184	11652					0948/0386/031/043?				
20130111	0843 0911 >0917	M1.2	.0093	N05E36L152	11654	280		II/1	IV/1		R2 /0909/025-050			
20130111	1451 1507 >1524	M1.0/1F	.014	N06E33L152	11654					1512/0370/063/062	R /1520/006-012			
20130113	0045 0050 >0052	M1.0	.0019	N19W28L184	11652					0212/0169/030/234?				
20130113	0835 0838 >0840	M1.7	.002	N19W28L184	11652	10000	140	II/2	IV/2	0848/0696/046/296?	R /0841/012-025			
20130217	1545 1550 1559	M1.9/SF	.0022	N12E20L036	11675	6700	340			1800/0286/017/162?	R /1550/100-300			
20130305	0747 0754 0759	M1.2/SF	.004	S15W54L261	11686	100		II/1						
20130315	0546 0658 >0833	M1.1/1F	.023	N11E12L077	11692	410	150	II/2		0712/1063/360/112	R3 /0709/012-025	17|0700/0016		
20130321	2142 2204 >2236	M1.6	.033	N09W88L077	11692					2224/0561/192/271	R /2202/012-025			
20130405	1734 1748 >1804	M2.2	.025	N07E88L077	11719		100				R /1808/012-025			
20130411	0655 0716 0906	M6.5/3B	.074	N09E12L077	11719	2700	470	II/3	IV/3	0724/0861/360/085	R3 /0708/025-050	11|1645/0114		
20130412	1952 2038 >2046	M3.3	.024	N21W42L110	11718						R /2036/025-050			
20130422	1022 1029 >1031	M1.0	.0023	N13W24L323	11726	5000				1112/0402/074/322				
20130502	0458 0510 0527	M1.1/1N	.0088	N10W26L189	11731	350	240	II/2		0548/0350/056/002	R /0507/050-100			
20130503	1639 1655 >1722	M1.3/2N	.025	N10W38L189	11731		130			1800/0858/274/042?	R2 /1646/025-050			
20130504	1724 1732 1745	M5.7/SF	.041	N16E81L075	11739		77	II/1		2000/0377/010/078?	R /1734/006-012			
20130505	1742 1744 >1817	M1.4	.003	N11E46L075	11739	3900					R2 /1756/025-050			
20130510	0044 0057 0108	M3.9	.036	N12E89L340	11745									
20130510	1237 1256 1304	M1.3	.013	N12E83L340	11745									
20130512	2017 2032 >2103	M1.9	.037	N10E89L292	11748	65				2036/0462/060/095	R /2046/012-025			
20130512	2237 2244 >2252	M1.2	.0076	N10E86L292	11748						R /2242/025-050			
20130513	0153 0217 >0232	X1.7	.23	N11E89L292	11748	920	320	II/1		0200/1270/360/064	R /0213/050-100	17|1720/0041		
20130513	1157 1203 >1209	M1.3	.0059	N11E87L292	11748						R /1202/025-050			
20130513	1548 1605 1637	X2.8/1N	.23	N14E85L292	11748	54	520	II/2	IV/2	1608/1850/360/063	R2 /1604/300-800			
20130513	2359 0111 >0120	X3.2/2B	.22	N12E77L292	11748	2200	640	II/1	IV/1	0126/2625/360/089	R3 /0018/012-025	14|1800/0001		
20130515	0124 0148 0230	2N/X1.2	.12	N12E64L292	11748	430	440	II/1	IV/2	0148/1366/360/093	R /0144/050-100	17|1720/0041		
20130516	2136 2153 2252	M1.3/1N	.012	N13E41L292	11748						R3 /2152/012-025			
20130517	0843 0857 1056	M3.2/2B	.044	N12E57L292	11748	1500	450	II/2	IV/2	0912/1345/360/050	R4 /0909/050-100			
20130520	0516 0525 >0603	M1.7	.033	N09E89L204	11755						R3 /0525/050-100?			
20130522	1235 1332 1555	3N/M5.0	.14	N15W70L340	11745	140	370	II/2	IV/1	1326/1466/360/287	R3 /1320/050-100	23|0650/1660		
20130531	1952 2000 2021	M1.0/SB	.005	N13E43L098	11760			II/2	IV/1	2036/0388/100/095	R /1959/012-025			
20130605	0814 0857 1012	M1.3/1F	.034	S32W51L130	11762	460	71		IV/1	0912/0505/214/190	R2 /0908/012-025			

DATE	TIME	CLASS	COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS		Attendant
y m d	to tm te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245 2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20130607	2211 2249 >2304	M5.9	.068	S32W89L130	11762	160			2312/0770/150/209	R2 /2217/012-025			
20130621	0230 0314 0357	M2.9/1F	.069	S16E73L165	11777			IV/1	0312/1900/207/107	R4 /0303/025-050	22|1700/0006		
20130623	2048 2053 >2059	M2.9/1N	.0025	S15E66L129	11778				2124/0339/101/133	R /2054/050-100	24|0520/0014		
20130703	0700 0708 0723	M1.3/SF	.0019	S11E82L348	11787	58	II/2	IV/2	0724/0807/360/105	R2 /0708/025-050			
20130812	1021 1041 1130	M1.5/SN	.001	S17E19L242	11817				1200/0297/188/165	R2 /1041/025-050			
20130817	*1816 1824 2141	2B/M3.3	.021	S07W30L218	11818	110	II/2	IV/2	1912/1202/360/274	R /2027/006-012			
20130817	*1849 1933 >1954	2B/M1.4	.046	S05W30L218	11818	260 150	II/2	IV/1	1912/1202/360/274				
20131009	0123 0148 >0156	M2.8	.025	S23E71L143	11865		II/1	IV/1	0212/0407/123/096	R /0152/012-025			
20131011	0701 0725 >0745	M1.5	.031	N21E87L103	11868	980 160	II/2	IV/2	0724/1200/360/092	R /0720/100-300MeV			
									see http://iopscience.iop.org/article/10.1088/2041-8205/805/2/L15				
20131013	0012 0043 0105	M1.7	.031	S22E17L143	11865	100	II/1		0125/0478/194/157	R /0034/012-025			
20131015	0826 0838 0932	M1.8/SN	.001	S22W13L143	11865	87			0936/0223/026/196	R /0913/012-025			
20131015	2331 2336 2354	M1.3/1F	.004	S23W20L143	11865				g	R /2336/025-050			
20131017	1509 1541 >1558	M1.2	.025	S09W63L164	11861	170			1648/0101/269	R /1531/012-025			
20131022	0014 0022 0030	M1.0/SF	.053	N06E17L027	11875					R /0020/025-050			
20131022	1444 1520 >1528	SF/M1.0	.015	N07E07L027	11875				1524/0351/071/087	R2 /1453/012-025			
20131022	2115 2120 2130	M4.2/1B	.0075	N04W01L027	11875	3200 220	II/2		2148/0459/360/190	g			
20131023	*2041 2053 0049	SF/M2.7	.017	N07W07L027	11875				2312/0162/093/120?	R2 /2224/012-025			
20131023	*2333 2343 >2347	SF/M1.4	.006	N07W07L027	11875				2312/0162/093/120?	R /2342/025-050			
20131023	*2358 0008 >0016	SF/M3.1	.023	N06W08L027	11875								
20131024	0021 0030 0048	M9.3/1N	.048	S10E08L009	11877	470	II/1	IV/1	0125/0339/360/217				
20131024	*0942 1009 ~1157	2B/M2.5	.017	N07W13L027	11875	110		IV/1	g	R /1046/006-012			
20131024	*1030 1033 >1037	2B/M3.5	.0080	N06W11L027	11875				g	R4 /1046/006-012			
20131025	0248 0302 >0312	M2.9	.025	S07E76L293	11882		II/2	IV/1	0324/0344/121/086	R /0259/050-100			
20131025	0753 0801 >0809	X1.7	.090	S08E73L293	11882	5200 610	II/2	IV/1	0812/0587/360/109	R /0800/100-300			
20131025	0943 1012 1046	M1.0/SF	.021	S03E68L293	11882				g	R3 /1011/012-025			
20131025	1451 1503 >1512	X2.1	.16	S06E69L293	11882	8800 370	II/2	IV/2	1512/1081/360/068	R /1501/100-300			
20131025	1702 1709 >1716	M1.3	.008	S08E67L293	11882				g	R /1708/025-050			
20131025	1905 1921 1958	M2.3/SF	.0091	S06E66L293	11882				2236/0149/040/262?	R3 /1944/012-025			
20131025	2050 2058 2204	1N/M1.9	.016	S07E64L293	11882				2236/0366/024/095	R4 /2118/012-025			
20131026	0559 0606 0715	1B/M2.3	.019	S09E61L293	11882	100			0700/0315/060/283?	R6 /0605/025-050			
20131026	0917 0937 >0948	M1.5	.017	S10E58L293	11882	100 67	II/2		0948/0460/141/286?	R2 /0926/050-100			
20131026	1011 1117 ~1212	1N/M1.8	.036	S05E58L293	11882	230 380			1124/0796/360/075	R7 /1104/025-050			
20131026	1924 1927 1938	M3.1/SF	.01	S09E81L261	11884	830			1912/0822/207/082				
20131026	1949 1953 >1958	M1.0/	.004	S07E53L293	11882	210				R /1952/012-025			
20131027	1233 1248 >1252	1F/M3.5	.016	N06W63L027	11875	150							
20131028	0141 0203 0231	X1.0/2N	.084	N04W66L027	11875	120 120	II/2		0224/0695/360/296	R2 /0201/100-300	29|0000/0005		
20131028	0432 0441 0453	M5.1/2B	.021	N08W71L027	11875	170	II/2	IV/1	0448/1201/156/313				
20131028	1132 1153 1336	M1.4/2N	.040	S16W44L009	11877				1212/0681/027/282	R7 /1201/012-025			
20131028	*1400 1405 1418	M2.8/1N	.014	N06W75L027	11875	55			1412/1073/093/303				DSF
20131028	*1446 1501 1523	M2.7/1N	.0098	S08E28L293	11882				1536/0812/360/086	R /1512/050-100			
20131028	*1507 1515 >1613	M4.4/1N	.026	S06E28L293	11882	2200 170	II/2	IV/1	1536/0812/360/086	R2 /1613/012-025			
20131028	2048 2057 >2102	M1.5	.0068	N07W83L027	11875	120			2125/0771/142/301	R /2056/100-300			
20131029	2142 2154 >2201	X2.3	.14	N05W89L027	11875	3900	II/1	IV/1	2200/1001/360/249	R /2214/012-025	30|0925/0005		
20131031	1336 1351 >1402	M1.9	.019	S12W88L352	11877				1412/0121/018/257?	R /1359/012-025			
20131101	1946 1953 2055	M6.3/1B	.023	S11E01L261	11884	290			2136/0122/065/026		02|2000/0003		
20131102	2213 2221 2248	M1.6/1F	.0064	S12W11L261	11884				2312/0408/037/004	R /2220/025-050			
20131103	0516 0522 0540	M5.0/2B	.013	S12W16L261	11884					R2 /0539/012-025			
20131105	0812 0818 0824	M2.5/1F	.0054	S17E48L170	11890	53			0824/0850/197/145				
20131105	1808 0813 >0817	M1.0	.003	S12E46L170	11890	2100 110			1948/0402/012/025?	R2 /1811/050-100			
20131105	2207 2212 2307	X3.3/1B	.066	S12E46L170	11890	79000 910	II/2	IV/1	2236/0562/195/141	R /2259/006-012			

DATE	TIME	CLASS	COORDINATES	AR	RADIO MHz		DYNAMIC EVENT	CME	X-ray hard	PROTONS		Attendant
y m d	to tm te	IMPORTANCE IF X-ray/opt J·m^{-2}	lt lg L		245	2695 sfu	RADIO SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20131106	1339 1346 ~1411	M3.8/1N .019	S12E37L170	11890	4900	190	II/2	1424/0347/122/159	R /1349/050-100			
20131106	2344 0002 >0014	M1.8/SPY .021	S16W89L261	11882				0000/1033/360/233	R /0009/012-025	07|0435/0007		
20131107	0334 0340 0350	M2.3/SN .006	S14E28L170	11890	1700		II/1	0424/0373/069/161	R /0340/050-100			
20131107	1415 1425 1441	M2.4/1N .012	S13E23L170	11890	11000	170	II/1 IV/1	1512/0411/360/130	R2 /1428/050-100			
20131108	0420 0426 0442	X1.1/2B .028	S14E15L170	11890	65000	1000	II/1 IV/1		g	09|1115/0002		
20131108	0922 0928 0938	M2.3/1B .0049	S18W28L205	11891					R /0931/006-012			
20131110	0508 0514 0536	X1.1/2B .035	S14W13L170	11890	10000	360	II/2 IV/1	0536/0682/262/198	R /0514/012-025	11|0920/0001		
20131111	1101 1118 >1130	M2.4 .030	S18E62L066	11897		76			R /1109/012-025			
20131113	1457 1520 >1541	M1.4 .021	S20E47L066	11897				1536/0438/109/045	R2 /1516/012-025			
20131115	0220 0229 >0233	M1.0/SF .005	N07E53L039	11899					R /0228/025-050			
20131116	0447 0453 >0457	M1.2 .004	S20W30L105	11900				0624/0323/053/199	R /0455/012-025			
20131116	0745 0749 0753	M1.6/1F .004	S19W29L105	11900					g			
20131117	0506 0510 0513	M1.0/SN .002	S20W42L105	11900				0548/0326/020/004	R /0509/012-025			
20131119	1014 1026 >1135	X1.0/SF .066	S11W70L098	11893	23000	530	II/1		R /1146/006-012	19|1825/0004		
20131121	1052 1111 >1142	M1.2 .025	S14W89L098	11893				1136/0668/148/232?	R2 /1107/012-025			
20131123	0220 0232 0314	M1.1/1N .014	N14W56L039	11999				0324/0460/036/010?	R /0230/012-056			
20131123	1249 1257 >1305	M1.0 .0068	N11W60L039	11999				1248/1536/013/169?				
20131207	0717 0729 0812	M1.2/1N .017	S16W49L208	11909	440	220	II/1	0736/1085/360/274	R /0749/006-012			
20131219	2306 2319 >2326	M3.5 .0021	S16E88L269	11934				2348/0244/099/102	R /2318/025-050			
20131220	1135 1157 >1207	M1.6 .019	S16E78L269	11934					R2 /1153/025-050			
20131222	*0805 0811 >0818	M1.9/SF .0084	S17W51L004	11928				0848/0231/032/210	R5 /0811/025-050			
20131222	*0833 0837 >0841	M1.1/SF .0036	S17W52L004	11928				1024/0270/055/152	R5 /0837/012-025			
20131222	1424 1438 1512	M1.6/1B .019	S18E44L269	11934					R2 /1425/025-050			
20131222	1445 1512 1533	1N/M3.3 .016	S19W56L004	11928				1436/0202/024/210?	R /1512/025-050			
20131222	2123 2208 2230	M1.6/SN .014	S17W58L004	11928				2236/0213/032/212	R5 /2210/012-025			
20131222	2344 0003 >0005	M1.3/SF .0058	S17E60L004	11928	130			0024/0690/184/092	R3 /2357/050-100			
20131223	0859 0906 0917	M1.6/1N .0045	S21W03L004	11928				1024/0270/055/152				
20131229	0749 0756 0808	M3.1/1N .011	S18E01L223	11936	1100	110						
20131231	2145 2158 >2220	M6.4/2N .091	S16W35L223	11936				2236/0271/087/251	R /2211/050-100			

2014

DATE	TIME	CLASS	COORDINATES	AR	RADIO MHz		DYNAMIC EVENT	CME	X-ray hard	PROTONS		Attendant
y m d	to tm te	IMPORTANCE IF X-ray/opt J·m^{-2}	lt lg L		245	2695 sfu	RADIO SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20140101	1840 1852 2137	M9.9/2B .082	S17W47L223	11936				2030/0234/017/260	R /1848/025-050			DSF
20140102	0224 0233 >0256	M1.7/SF .027	S05E76L101	11944					g			
20140102	2208 2218 2231	1N/M1.2 .0043	S05E72L101	11944					g			
20140103	1241 1250 >1254	M1.0 .0051	S04E52L101	11944	530				R /1247/012-025			
20140103	2109 2114 2123	M1.1/SF .0040	S06E56L101	11944	140				g			
20140104	1016 1025 >1041	M1.3/2N .014	S05E48L101	11944		140		g(04/10-04/21)	R /1019/050-100			
20140104	1847 1946 >2023	M4.0 .14	S11E34L101	11944	620	550	IV/1	2123/0977/360/195?	R /1949/012-025			
20140104	2212 2252 >2322	M1.9 .059	S06E39L101	11944				2312/0567/201/283	R2 /2259/012-025			
20140107	0349 0353 0404	M1.0/1N .027	N07E08L096	11946					R /0349/025-050			
20140107	1007 1013 1124	M7.2/2B .092	S13E11L101	11944	110	480		1036/0451/071/148	R /1008/100-300			
20140107	1804 1832 2054	X1.2/2N .25	S15W11L101	11944	7200	8300	II/2	1824/1830/360/231	R6 /1256/012-025	09|0340/1033	GLE	
20140108	0339 0347 >0354	M3.6/SF .0017	N11W81L180	11947	1300	100	II/2	0412/0643/108/305	R1 /0336/050-100			
20140113	2148 2151 >2153	M1.3/SF .0018	S07W11L101	11944		94		2224/0330/124/316	R2 /2148/025-050			

DATE	TIME			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT	CME	X-ray hard	PROTONS		Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20140127	0105	0122	>0139	M1.0	.015	S16E88L114	11967				0212/0687/131/088	R /0104/012-025			
20140127	0202	0211	>0218	M1.1	.008	S13E88L114	11967				0424/0642/024/079	R /0152/006-012			
20140127	2205	2210	>2215	M4.9	.016	S14E88L114	11967				0000/0773/039/093	R3 /2207/025-050			
20140128	0402	0409	>0413	M1.5	.0056	S14E88L114	11967				0548/0494/110/071	R /0415/006-012			
20140128	0725	0731	>0734	M3.6	.0080	S10E75L114	11967	2000			0748/0493/097/059	R /0732/012-025			
20140128	1134	1138	>1141	M1.4	.0031	S10E72L114	11967				1148/0656/055/066	g			
20140128	1233	1246	>1250	M1.3	.0089	S14E79L114	11967				1536/0543/112/066	R /1233/012-025			
20140128	1524	1526	1543	M3.5/SF	.0051	S13E88L114	11967	36000	73			R /1525/050-100			
20140128	1900	1940	1955	M4.9/SF	.031	S14E76L114	11967	140	1700		2057/0206/023/050	R3 /1902/012-025			
20140128	2204	2216	2223	M2.6/1F	.012	S14E75L114	11967				0006/0419/075/097	R2 /2203/050-100			
20140130	0633	0639	>0706	M2.1/SF	.008	S15E54L114	11967				0736/0280/011/130	R /0707/012-025			
20140130	0754	0811	0825	M1.1/SF	.025	S12E52L114	11967		69		0824/0458/360/112				
20140130	1548	1611	1619	M6.6/2N	.097	S13E58L114	11967	200	220		1624/1087/360/117	R /1618/012-025			DSF
20140131	1532	1542	>1553	M1.1	.0093	N07E34L112	11968				1624/0462/170/023				
20140201	0119	0125	>0138	M1.0/1F	.0077	S11E26L114	11967				0348/0301/031/077	g			
20140201	0645	0723	0843	1B/M3.0	.025	S11E23L114	11967					R7 /0711/025-050			
20140202	0624	0634	0706	M2.6/1B	.009	N12E18L112	11968					R4 /0631/050-100			
20140202	0717	0820	0842	M2.2/1N	.043	S10E14L114	11967				0848/0591/258/235	R3 /0806/025-050			
20140202	0924	0931	1005	M4.4/1B	.020	S11E13L114	11967					g			
20140202	1401	1406	>1409	M1.3	.0034	N12E14L112	11968	92	71			R2 /1407/012-025			
20140202	1624	1629	>1636	M1.0	.0050	N09E06L112	11968				1724/0463/143/224	R /1623/012-025			
20140202	1805	1811	>1818	M3.1	.014	S10E08L114	11967		180			R /1801/025-050			
20140202	2124	2204	>2214	M1.3	.028	S10E01L114	11967				2348/0199/030/123	R2 /2203/025-050			
20140204	0116	0123	0254	M3.8/1B	.025	N09W13L112	11968					R2 /0109/025-050			
20140204	0240	0306	>0348	M1.2	----	S15W03L114	11967					R2 /0245/025-050			
20140204	0357	0400	0428	M5.2/1B	.018	S14W06L114	11967								
20140204	0938	0949	>0958	M1.4	.013	S12W12L114	11967					R /0930/025-050			
20140204	1455	1602	1712	1N/M1.5	.058	S12W12L114	11967				1636/0368/189/212	R2 /1524/050-100			
20140205	1611	1620	>1642	M1.3	.018	s10w36L114	11967					R /1641/012-025			
20140206	2256	2305	>2310	M1.5/SF	.0077	S14W48L114	11967		180			R /2251/025-050			
20140207	0330	0456	0549	2N/M2.0	.014	S15W50L114	11967				0536/0628/015/246	R13/0442/050-100			
20140207	1025	1029	1045	M1.9/1N	.0028	N09W53L112	11968				1036/0421/011/307	R /1025/050-100			
20140209	1540	1617	>1652	M1.0	.032	S16E88	?				1600/0908/360/104	R3 /1557/012-025			
20140211	0314	0331	0400	M1.7/1N	.012	S12E17L356	11974	920	140	II/2 IV/1	0413/0222/081/266	R /0314/012-025			
20140211	1553	1710	1942	M1.8/2F	.029	S10E21L356	11974	270			1924/0613/271/273	R2 /1630/012-025			
20140212	*0352	0425	0818	M3.7/2N	.043	S12W02L356	11974				0352/0373/360/328	R4 /0418/025-050			
20140212	*0654	0658	0909	M2.3/2N	.010	S13W01L356	11974				1000/0255/042/303	R5 /0653/012-025			
20140212	1541	1551	>1615	M2.1	.029	S10W04L356	11974	160	40		1636/0533/360/331	R /1538/050-100			
20140213	*0016	0140	0357	2F/M1.8	.014	S12W09L356	11974				g(13/02-13/13)	R2 /0233/006-012			
20140213	*0241	0251	>0304	2F/M1.0	.011	S11W10L356	11974				g	R /0233/006-012			
20140213	0549	0607	>0613	M1.7	.0096	S11W11L356	11974				g				
20140213	0805	0812	>0819	M1.0/1N	.0051	S12W13L356	11974				g				
20140213	1545	1557	1615	M1.4/SF	.012	S13W24L356	11974				1636/0502/104/212	R /1537/025-050			
20140214	0240	0257	0357	M2.3/2F	.024	S12W25L356	11974	2300				R3 /0221/012-025			
20140214	1229	1240	1255	M1.6/1N	.0081	S15W36L356	11974		59			R2 /1229/025-050			
20140214	1321	1328	>1339	M1.1	.0084	S12W30L356	11974					R /1328/012-025			
20140214	1633	1639	1645	M1.0/SB	.0031	S13W32L356	11974	810	200		1724/0283/064/247	R /1639/012-025			
20140216	0920	0926	0934	M1.2/SN	.0034	S11E01L291	11977	2400	92	II/2 IV/1	1000/0634/360/227				
20140220	0726	0756	0832	M3.0/SN	.063	S11E43L207	11982	250	4 20	II/2	0800/0948/360/268	R2 /0737/025-050	20|0925/0022		
20140223	0550	0610	>0636	M1.1	.022	S16E88L110	11990				0648/0540/084/108	R2 /0555/025-050			
20140224	1103	1117	>1142	M1.2/SF	.019	S11E88L110	11990				1136/0495/193/110	R2 /1128/012-025			EPL

DATE				CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS		Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20140224	1200	1205	>1210	M1.3	.0052	S12W18L207	11982					1336/0266/083/106	R /1158/006-012			
20140225	0039	0049	0210	X4.9/2B	.43	S12E82L110	11990	10000	3700	II/3	IV/2	0126/2147/360/073	R3 /0037/300-800	28|0845/0103		WL DSF
20140226	<1452	1501	>1528	1N/M1.1	.0074	S13W44L207	11982					1548/0207/080/265	R /1506/012-025			
20140228	0044	0048	0056	M1.1/SN	.0019	S24E53L094	11991									
20140301	1318	1333	>1340	M1.1	.011	S12W88L207	11982					1512/0101/078/266	R /1336/012-025			
20140302	2311	2319	>2326	M1.1/SF	.0059	N15W74L176	11986						R /2307/012-025			
20140303	1554	1558	1604	M1.2/SN	.0026	N05W36L136	11989		89							
20140305	0206	0210	>0212	M1.0	.002	S27W08L094	11991	130				0448/0428/160/291	R3 /0450/012-025			
20140308	2326	2341	>2350	M1.4	.011	S18E64L323	12002						R /2328/025-050			
20140309	1326	1358	1425	SN/M1.0	.0055	S17E58L323	12002						R3 /1345/012-025			
20140309	2013	2028	2101	M1.0/SF	.0092	S19E54L323	12002						R3 /2008/025-050			
20140310	0019	0026	~0100	M1.2/SF	.0059	S19E51L323	12002						R3 /0039/006-012			
20140310	0402	0408	>0413	M1.0	.0038	S18E48L323	12002						R2 /0358/012-025			
20140310	1521	1528	>1532	M1.7	.0069	S20E43L323	12002									
20140310	2245	2300	2333	M1.4/SF	.016	N14W51L051	11996						R2 /2252/003-006			
20140311	0344	0350	0429	M3.5/1F	.013	N13W55L051	11996		110			0400/0198/016/325	R2 /0344/025-050			
20140311	1158	1207	>1214	M1.7	.010	S25W86L093	11991						R /1209/050-100			DSF
20140312	1055	1105	1139	M2.5/SN	.012	N13W69L051	11996									
20140312	2228	2234	2250	M9.3/SB	.031	N15W78L051	11996		140			0125/0564/077/277	R /2228/050-100			
20140313	1903	1919	>1930	M1.3	.012	N15W87L051	11996						R /1905/025-050			
20140320	0342	0356	0444	M1.7/1F	.016	S12E75L168	12014			II/1	IV/1	0436/0740/360/140	R /0334/012-025			
20140322	0658	0702	0710	M1.1/1F	.0022	S10W71L277	12011					0648/0340/168/279?	R /0657/025-050			
20140328	1904	1918	1939	M2.0/SN	.013	N11W21L145	12017	250		II/2		2012/0246/027/203	R /1911/025-050			
20140328	2344	2351	>2358	M2.6	.013	N10W22L145	12017	2100		II/2		0012/0410/018/253	R /2347/025-050			
20140329	1735	1748	1816	X1.0/2B	.042	N11W32L145	12017	10000	360	II/3		1812/0528/360/325	R /1735/100-300	29|2230/0003		
20140330	1147	1155	1224	1N/M2.1	.015	N08W43L145	12017	200	120	II/2		1224/0487/192/321	R /1216/006-012			
20140331	0720	0807	>0818	M1.4	.019	S13W76L168	12014				IV/1	0836/0234/123/271	R3 /0756/025-050			
20140402	1318	1405	1535	M6.5/2B	.14	N14E53L015	12027	520	3700	II/1	IV/2	1336/1471/360/060	R2 /1332/050-100	05|0300/0001		DSF
20140416	1954	1959	2020	M1.0/1N	.0038	S14E09L224	12035	10000		II/2		2000/0764/061/166	R /1955/012-025			
20140418	1231	1303	>1320	M7.3	.11	s18w33L242	12036	160	1000	II/2	IV/2	1326/1203/360/238	R /1250/050-100	19|0105/0058		
20140425	0017	0027	>0038	X1.3/SF	.11	S15W89L204	12046			II/2		0048/0456/296/269	R /0012/050-100			
20140506	0841	0903	0937	M1.8/SF	.033	S15W84L056	12051					0848/0245/093/244	R /0916/012-025			
20140506	2201	2209	>2220	M1.0/SF	.0077	S11W89L056	12051					2218/0831/160/265	R /2158/025-050			
20140507	1546	1629	>1703	SF/M1.2	.029	S11W89L047	12051					1624/0923/360/260	R /1635/012-025			DSF
20140508	0920	1007	~1125	M5.3/2B	.047	N08E54L258	12056		390			1012/0184/031/145	R2 /1026/025-050			
20140524	1826	1835	1910	M1.3/SF	.0081	S19W53L142	12065		229			1948/0490/051/271				
20140603	0358	0409	0454	M1.3/2N	.0086	S05E30L301	12077					0446/0540/031/189	R /0359/012-025			
20140606	1926	1931	1941	M1.4/SF	.0025	S12E25L269	12080						R /1931/025-050			
20140610	1136	1142	1155	X2.2/SF	.047	S15E80L154	12087	4400	1400	II/1		1148/0925/087/102	R /1143/050-100			
20140610	1236	1252	1317	X1.5/1F	.140	S17E82L154	12087	260	530		IV/2	1330/1469/360/156	R /1235/050-100			
20140611	0530	0534	>0536	M1.8/SN	.0031	S12W35L261	12080	590	100			0736/0491/081/233	R /0531/050-100			
20140611	*0800	0809	0952	M3.0/2B	.017	S14E68L154	12087	300	130		IV/1	0824/0773/103/090	R2 /0839/025-050			
20140611	*0859	0906	>0910	X1.0/2B	.033	S18E65L154	12087	1800	190			0924/0829/030/125	R3 /0858/100-300			
20140611	2053	2103	2120	M3.9/SF	.024	S21E58L154	12087	3000	420			2124/0490/058/119	R /2059/025-050			
20140612	0414	0421	0432	M2.0/SF	.0082	S16E55L154	12087		89			0436/0609/072/115	R /0408/025-050			
20140612	0923	0937	1005	M1.8/1B	.008	S25W53L254	12085	150	87			0948/0517/032/247	R3 /0939/012-025			
20140612	1014	1021	1052	M2.7/1F	.013	S20E52L154	12087	450				1048/0472/054/124	R2 /1024/025-050			
20140612	1803	1813	1831	M1.3/SF	.011	S19E48L154	12087	220	31			1848/0396/035/123	R /1803/025-050			
20140612	1956	2003	2014	M1.1/SF	.0005	N17E05L196	12089									
20140612	2101	2113	2124	M1.0/SF	.0071	S22E49L154	12087	180				2139/0522/031/124	R /2044/012-025			
20140612	2134	2216	2324	M3.1/1F	.095	S18E45L254	12087			II/2		2212/0684/186/228	R4 /2220/012-025	13|0300/0001		

DATE				CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20140613	0744	0756	0818	1N/M2.6	.0091	S18W01L154	12087			II/2		0824/0370/042/126	R /0749/025-050				
20140614	1923	1929	>1934	M1.4	.0054	S12E89L086	12093					1948/0732/139/112	R /1925/006-012				
20140615	1110	1139	>1150	M1.1	.018	S22W89L254	12085					1300/0958/190/221?	R /1119/012-025				
20140615	2350	0001	>0017	M1.0	.011	S10E08L154	12087						R /2350/012-025				
20140701	1105	1123	>1159	M1.4	.035	S12E48L269	12104					1148/0614/195/008	g				
20140708	1604	1620	1716	2B/M6.5	.059	N12E56L161	12113	3100	150	II/2	IV/1	1636/0773/360/067	g				DSF
20140709	0020	0026	>0033	M1.2	.0059	S15E64L149	12114	690		II/1		0048/0672/130/062	g				
20140710	2229	2234	>2237	M1.5	.0040	N14W86L261	12106	140					g				
20140731	1101	1114	>1121	M2.5	.017	S10E51L226	12130					1136/0482/014/203	g				
20140801	1443	1448	>1457	M2.0	.011	S09E48L226	12130	46	340			1512/0214/053/116	g				
20140801	1755	1813	1848	M1.5	.035	S10E11L248	12127		97	II/2	IV/1	1836/0789/360/131	g				
20140821	1319	1331	>1342	M3.4/SF	.026	N15E86L276	12149	130			IV/2	1412/0427/059/030	R /1339/012-025				
20140822	~0609	0628	>0718	1F/M1.2	.0073	N12E73L276	12149					0824/0296/010/121	R /0613/025-050				
20140824	1200	1217	1310	M5.9/2B	.039	S07E75l255	12151	28	410	II/2		1236/0551/360/100	R /1149/006-012				
20140825	1446	1511	1639	M2.0/1B	.032	N05W36L343	12146	100	150	II/2	IV/1	1536/0555/360/270	R11/1534/006-012				
20140825	2006	2021	>2029	M3.9/1F	.03	N07W43L343	12146	84	82			2048/0711/177/277		25|2300/0001			
20140903	1320	1354	>1423	M2.5/SF	.066	S14W18L206	12152	60				1400/0468/059/097	g				
20140906	1650	1709	1727	M1.1/SF	.015	S14E53L100	12157					1724/0514/170/015	g				
20140908	2312	0029	0159	M4.5/1N	.22	N12E29L085	12158	1000	170	II/1		0006/0920/360/059	R4 /0012/025-050				
20140910	1659	1745	2240	2B/X1.6	.38	N14E02L085	12158	3800	1300	II/2	IV/2	1800/1267/360/175?	R12/1813/012-025	12|1355/0126			
20140911	1520	1526	>1531	M2.1	.0086	N15E88L356	12166	210					R /1525/025-050				
20140911	2101	2126	>2130	M1.4	.007	N17E82L356	12166					2212/0616/118/277	R2 /2108/012-025				
20140914	0203	0216	0426	M1.5/2N	.022	N14E61L356	12166					0248/0447/155/273	R4 /0211/025-050				
20140918	0837	0841	>0853	M1.2/SN	.0044	N08E70L290	12169	16000	72	II/2		0937/0285/050/033	R /0842/050-100				
20140923	2301	2316	0010	2B/M2.3	.022	S14E33L250	12173	380	250	II/2	IV/1	2336/0331/134/095					
20140927	0832	0837	>0840	M1.0	.0034	S14E89L151	12178					0912/0403/026/094					
20140928	0239	0258	0441	M5.1/2B	.079	N16W38L263	12175	160	220	II/1	IV/1	0324/0215/060/212	R /0232/025-050				
20140928	1634	1733	1800	M1.0/SF	.029	S15W27L242	12172		19			1848/0288/014/327	R5 /1702/025-050				
20141002	1710	1744	>1815	M1.5/SF	.038	S18W76L242	12172					1800/0245/089/240	R2 /1722/012-025				DSF
20141002	1849	1901	1925	M7.3/1F	.074	S17W82L250	12173			II/1	IV/1	1912/0513/159/248	R /1856/025-050				DSF
20141009	*0129	0143	0217	1F/M1.3	.0046	S15W45L120	12182					0348/0180/110/262	R2 /0128/025-050				
20141009	*0154	0158	>0202	M1.4/1F	.0044	S15W45L120	12182						R /0154/025-050				
20141009	0641	0659	0721	1N/M1.2	.0076	S18W46L120	12182						R /0648/025-050				
20141014	1821	1837	>1846	M1.1	.0097	S12E88L252	12192		1300			1848/0848/360/090					
20141014	1907	1921	>0019	M2.2	.31	S11E88L252	12192	160	180				R3 /1907/025-050				
20141016	1258	1303	>1305	M4.3	.0082	S13E88L252	12192	9000	190			1326/0777/033/096	R /1258/050-100				
20141018	0702	0758	>0849	M1.6/SF	.066	S13E71L252	12192										
20141019	0417	0503	0639	X1.1/SN	.39	S10E58L252	12192					0448/0139/077/116	R /0547/006-012				
20141020	0854	0911	1003	1N/M3.9	.028	S14E42L252	12192		47				R4 /0958/012-025				
20141020	*1600	1637	2023	M4.5/2N	.099	S14E37L252	12192		190			1724/0161/029/093	R3 /1619/025-050				
20141020	*1855	1902	>1904	M1.4/2N	.0052	S15E46L252	12192	14000	120			1912/0187/234/167	R /1857/050-100				
20141020	*1953	2004	>2013	M1.7/2N	.015	S14E36L252	12192						R /1947/025-050				
20141020	2211	2255	0007	1N/M1.2	.017	S14E36L252	12192						R8 /2239/025-050				
20141021	1335	1338	>1340	M1.2	.0014	S14E36L252	12192	42000	510	II/2			g				
20141022	0116	0159	>0228	M8.7	.21	S13E21L252	12192		580		IV/1		R /0112/050-100				
20141022	0511	0517	>0521	M2.7	.01	S15E14L252	12192						R /0457/012-025				
20141022	1402	1428	2230	X1.6/2B	.34	S14E13L252	12192		200				R8 /1424/100-300				
20141022	1551	1557	>1603	M1.4	.0075	S11E88L164	12197			II/1		1612/0434/080/100	R /1551/025-050				
20141023	0944	0950	>0956	M1.1/1F	.0053	S16E03L252	12192						g				
20141024	0737	0748	>0753	M4.0	.023	S19W05L252	12192	1200	150	II/1	IV/1	0800/0677/096/203	R /0736/050-100				
20141024	2050	2141	0014	3B/X3.1	.86	S16W21L252	12192		210			2148/0184/035/210	R3 /2106/050/100				

DATE	TIME			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20141025	1338	1708	~0007	3B/X1.0	.39	S16W31L252	12192		160				R28/1631/025-050				
20141026	1004	1056	1253	2B/X2.0	.34	S18W40L252	12192		200				R5 /1012/025-050				
20141026	1708	1717	>1730	M1.0	.0099	S13W38L252	12192		110				R /1722/012-025				
20141026	1807	1815	>1820	M4.2	.023	S14W37L252	12192						R /1806/050-100				
20141026	1843	1849	>1856	M1.9	.01	S13S38L252	12192										
20141026	1959	2021	>2045	M2.4	.052	S15W45L252	12192	400					R /2032/012-025				
20141027	*0001	0034	>1022	3B/M7.1	.10	S14W44L252	12192						R /2353/025-050				
20141027	*0144	0202	>0211	M1.0/3B	.013	S14W44L252	12192						R2 /0126/025-050				
20141027	*0335	0341	>0348	M1.3/3B	.0073	S13W45L252	12192						R /0312/025-050				
20141027	*0552	0715	1348	2B/C9.6	.0037	S18W48L252	12192						R /0655/025-050				
20141027	*0959	1009	>1026	2B/M6.7	.093	S18W48L252	12192						R /0944/025-050				
20141027	1404	1447	<1531	2B/X2.0	.45	S17W52L252	12192		110			1512/0170/055/216?	R2 /1401/050-100				
20141027	~1524	1740	0009	1F/M1.4	.0086	S19W56L252	12192						R2 /1734/025-050				
20141028	*0215	0242	0427	M3.4/1B	.076	S14W61L252	12192						R /0238/025-050				
20141028	*0323	0332	>0341	M6.6/1B	.052	S14W61L252	12192						R3 /0321/025-050				
20141028	1354	1406	>1423	M1.6/SF	.020	S18W73L252	12192		29				R /1342/025-050				
20141029	0603	0820	>0852	M1.0/SF	.076	S14W74L252	12192						R6 /0602/025-050				
20141029	0954	1001	>1006	M1.2	.0055	S18W77L252	12192						g				
20141029	1419	1433	1507	SF/M1.4	.019	S16W81L252	12192					1512/0192/101/264	R4 /1423/025/050				
20141029	1606	1620	>1633	M1.0	.012	S14W82L252	12192						g				
20141029	1847	1850	>1852	M1.3	.0019	S13W47L252	12192						R /1847/050-100				
20141029	2118	2122	>2125	M2.3	.0049	S09W88L252	12192						R /2122/025-050				
20141030	0034	0037	>0040	M1.3	.0027	S14W81L252	12192						R /0032/100-300				
20141030	0119	0135	>0156	M3.5	.047	S14W86L252	12192						R /0110/025-050				
20141030	0417	0428	0439	M1.2/SF	.009	S16W89L252	12192						R /0416/025-050				
20141103	1123	1153	>1217	M2.2	.042	N17E90L015	12205			II/2		1200/0447/196/058	R2 /1114/025-050				
20141103	2215	2240	2322	M6.5/1F	.066	N14E89L012	12205		180	II/1		2313/0638/155/061	R2 /2212/012-025				
20141104	*0759	0838	>0851	M2.6/SF	.071	N15E82L012	12205					0848/0627/175/065	R /0755/012-025				
20141104	*0842	0904	0935	1F/M2.3	.029	N15E82L105	12205						R2 /0849/025-050				
20141105	0926	0947	~1033	M7.9/1N	.052	N20E68L012	12205	8900	240	II/2		1000/0386/182/063	R2 /0925/012-025				
20141105	1850	1944	>2018	M2.9/1N	.078	N17E65L012	12205			II/1		1948/0608/203/077	R2 /1941/025-050				
20141106	0129	0139	0317	M3.2/2N	.03	N15E58L012	12205					0200/0529/035/070	R3 /0154/012-025				
20141106	0329	0346	0512	1N/M5.4	.071	N17E58L012	12205			II/1	IV/1	0400/0641/210/082	R3 /0329/025-050				
20141106	2153	2216	2252	M2.5/1N	.033	N14E45L012	12205	190	200			2236/0403/040/046	R2 /2228/012-025				
20141107	*0201	0249	0551	2N/M2.7	.076	N17E50L012	12205	240				0428/0516/088/006	R3 /0222/025-050				
20141107	*0412	0425	>0438	2N/M2.0	.026	N17E50L012	12205					0439/0672/060/114	R /0407/012-025				
20141107	0943	1022	>1030	SF/M1.0	.0069	N15E43L012	12205						R3 /0958/012-025				
20141107	1453	1726	2035	3B/X1.6	.15	N17E40L012	12205			II/2	IV/1	1808/0795/293/075	R7 /1227/025-050				
20141109	1524	1532	1615	M2.3/1B	.011	N18E14L012	12205					1624/0388/077/303	R /1520/050-100				
20141115	1140	1203	~1240	M3.2/SB	.024	S09E63L264	12209	3900	229			1224/0145/048/092	R /1204/012-025				
20141115	2038	2046	>2050	M3.7	.013	S13E63L264	12209	1600	240			2124/0150/175/142	R /2039/006-012				
20141116	1735	1748	>1757	M5.7	.041	S12E46L264	12209		300			1824/0133/137/120	g				
20141201	0626	0641	0718	M1.8/1N	.023	S21E17L083	12222						R /0624/025-050				
20141204	0736	0810	0932	1N/M1.3	.011	S24W27L083	12222						R2 /0725/012-025				
20141204	1805	1825	>1856	M6.1	.12	S21W28L083	12222						R /1748/025-050				
20141205	1133	1225	>1247	M1.5	.031	S23W41L083	12222						R4 /1142/012-025				
20141213	0513	0520	0525	M1.5	.0064	S09E84L217	12241					0548/0435/077/045	g	14|1020/0003			
20141214	1925	1933	2008	M1.6/SF	.0078	S19E44L238	12242			II/2		1948/0626/148/118	R2 /1935/012-025				
20141217	0055	0110	0213	1N/M1.5	.014	S25E10L237	12242					0200/0869/108/091	R2 /0125/012-025				
20141217	0130	0150	0255	SN/M1.1	.0083	S11E33L217	12241						R /0132/012-025				
20141217	0423	0451	0638	2B/M8.7	.19	S20E09L237	12242	100	320	II/3	IV/1	0512/0260/033/359	R2 /0441/025-050				

DATE			TIME		CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO SWEEP		to / v km/s	/da / pa	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20141217	1854	1901	2003	1N/M1.4	.016	S10E24L217	12241							R2 /1853/025-050				
20141218	2141	2158	2345	M6.9/2N	.1	S11E15L217	12241	550	240	II/2	IV/1	g(18/16-19/00)		R3 /2140/025-050				
20141219	0931	0944	>0954	M1.3/1N	.011	S19W27L237	12242					1100/0457/024/298		R /0931/012-025				
20141220	0011	0028	0241	X1.8/3B	.27	S21W24L237	12242	120	2300	II/1		0126/0830/216/197		R4 /0035/025-050	21|2015/0003			
20141221	0718	0732	>0751	M1.2/1N	.018	S21W48L237	12242							R /0715/025-050				
20141221	1124	1217	>1257	M1.0	.046	S13W25L217	12241					1212/0669/360/189		R2 /1157/012-025				
20141222	0118	0149	0234	M1.0/1F	.011	S19W54L240	12242							R /0139/012-025	23| ~02/0003			
20141227	0203	0216	0324	M2.2/2B	.014	S11W48L164	12249							R /0212/012-025				

2015

DATE			TIME		CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO SWEEP		to / v km/s	/da / pa	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20150103	0940	0947	0957	M1.1/1N	.0031	S04E17L126	12253		57					R2 /0946/050-100				
20150104	1517	1536	1731	2N/M1.3	.016	S07E02L126	12253							R /1534/012-025				
20150113	*0413	0424	0604	M5.6/2B	.045	N06W70L320	12257		290					R /0454/012-025				WL
20150113	*0446	0458	0510	M4.9/2B	.062	N05W76L320	12257											
20150114	1230	1258	>1308	M2.2	.020	N08W89L320	12257							R /1255/006-012				
20150122	0443	0452	>0502	M1.4	.0096	S11E89L046	12268											
20150126	1646	1653	1658	M1.1	.0046	S09E32L046	12268					2012/0447/011/031		R /1651/025-050?				
20150128	0421	0441	0609	M1.4/2N	.021	S09E09L046	12268					0600/0222/022/096		R2 /0517/012-025				
20150128	2132	2137	>2141	M1.0/SF	.0024	N08E73L336	12277					2200/0817/054/120		R /2137/006-012				
20150129	1132	1142	~1222	M2.1/1B	.017	S12W06L046	12268							R /1138/025-050				
20150130	0032	0044	>0102	M2.0	.023	S13W16LO46	12268					g						
20150130	0529	0536	>0635	M1.7	.048	S13W16L046	12268					g		R3 /0604/025-050				
20150130	1210	1216	>1221	M2.4	.0087	N07E52L336	12277		110			g		R /1215/025-050				
20150204	0208	0215	0255	M1.2/2N	.0057	N10W14L329	12277					0248/0241/098/261		R /0211/012-025				
20150209	2259	2335	>0004	M2.4	.076	N12E61L194	12282	480		II/1	IV/2	2324/1106/360/051		R /2325/012-025				
20150302	0631	0639	>0644	M1.0/1F	.0046	N19W84L063	12290			II/1	IV/1	0700/0383/123/318		R /0637/050-100				
20150302	0937	0948	>0958	M1.1	.0094	N20W85L063	12290							R /0946/012-025				
20150302	1510	1528	>1537	M3.7	.031	N20W87L063	12290	23	16			1545/0452/204/318		R /1537/012-025				
20150302	1921	1931	>1936	M4.1	.019	N20W86L063	12290					1938/0227/020/285		R /1924/012-025				
20150303	0125	0135	>0157	M8.2/SB	.044	N21W87L063	12290			II/1	IV/1	0136/0390/086/292		R /0134/050-100				
20150305	1706	1811	>1826	M1.2	.023	S14E88L195	12297											
20150306	0414	0457	>0527	M3.0	.090	S29E87L195	12297		120			0439/0812/155/116		R /0442/012-025				
20150306	0655	0815	>0828	M1.5	.068	S20E87L195	12297					0712/0880/275/092		R3 /0742/012-025				
20150307	2145	2222	>2258	M9.2	.23	S19E74L195	12297	23	16	II/1	IV/2	2212/1261/360/125		R /2211/025-050				
20150309	1418	1422	>1455	M4.5/1N	.016	S15E49L196	12297	130				1512/0448/041/082		R2 /1440/012-025				
20150309	2329	2353	>0012	M5.8/2N	.085	S18E45L196	12297	240	170	II/2	IV/2	0000/0995/360/107						
20150310	0319	0324	>0328	M5.1/2B	.017	S15E40l196	12297	910	130	II/1	IV/1	0336/1040/360/071		R /0323/100-300				
20150310	2346	0002	>0006	M2.9/SF	.010	S16E28L196	12297			II/1		0024/0702/081/074		R2 /0002/050-100				
20150311	*0710	0718	>0756	M1.8/1B	.022	S16E26L196	12297		57			0824/0530/062/067		R /0706/012-025?				
20150311	*0751	0757	>0803	M2.6	.013	S15E23L196	12297	590				0824/0462/118/337		R /0806/006-012?				
20150311	1401	1622	1809	2B/X2.1	.12	S17E21L196	12297	360	160	II/2		1712/0075/110/347		R12/1621/025-050				
20150311	1837	1851	>1857	M1.0/1N	.0063	S16E18L196	12297		77					R /1850/025-050				
20150312	0441	0446	>0450	M3.2	.011	S15E11L196	12297							R /0445/050-100				
20150312	1138	1150	>1202	M1.6	.015	S17E11L196	12297	130										

DATE				CLASS		COORDINATES		RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L	AR	245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20150312	1209	1214	>1218	M1.4	.0055	S18E05L196	12297		220				R /1212/050-100				
20150312	1345	1404	1433	2B/M4.2	.021	S15E06L196	12297	2300	53		IV/1		R /1353/012-025				
20150312	2144	2151	>2156	M2.7	.012	S15E01L196	12297	530	230	II/1			R /2149/025-050				
20150313	0347	0401	>0416	M1.2	.014	S17E04L196	12297					0436/0294/009/311?	R /0405/012-025				
20150313	0549	0607	>0612	M1.8	.013	S14W02L196	12297	280				0848/0323/006/212	R /0606/025-050				
20150314	0423	0440	0523	M1.3/2N	.014	S14W12L196	12297										
20150315	0936	0940	1012	M1.0/SN	.0040	S20W24L196	12297						R2 /1020/012-025				
20150315	2242	2322	>2338	M1.2	.027	S19W32L196	12297					2324/0284/015/290	R2 /2254/025-050	16|0750/0008			
20150316	1039	1058	1151	M1.6/2N	.025	S17W39L196	12297					1124/0441/019/225	R4 /1052/025-050				
20150317	2249	2334	0045	M1.0/2N	.014	S21W56L196	12297	1500	110	II/2		2348/0510/110/239	R3 /2314/050-100				
20150408	1437	1443	1447	M1.4/1B	.0040	S14W04L214	12320	110				1648/0346/012/282?	R /1443/025-050				
20150412	0851	0950	>1044	M1.1	.043	N11E18L094	12321	160				0948/0336/123/068	R /0958/012-025				
20150421	0708	0721	0731	M1.0/SF	.0064	N09W80L116	12322	210					R /0719/050-100				
20150421	1017	1040	>1059	M2.2	.037	N19E90L309	12333?					1036/2039/191/044					
20150421	1141	1157	1226	M2.2/SF	.011	N10W84l116	12322					1148/0698/083/297	R3 /1155/100-300				
20150421	1655	1700	>1709	M2.1/SF	.012	N13W84L116	12322						R /1651/050-100?				
20150421	*2139	2145	>2155	M1.8	.011	N10W80L116	12322						R /2143/100-300				
20150421	*2158	2201	>2204	M1.2	.0028	N09W80L116	12322										
20150422	0830	0844	>0858	M1.1/SF	.012	S09E05L116	12332					0912/0536/008/178?	R2 /0834/100-300				
20150423	0918	1007	>1110	M1.1	.057	N07W80L121	12322			II/1		0936/0857/360/291?	R4 /1004/025-050				
20150505	0942	0947	>0951	M1.9	.0054	N14E82L139	12339					1048/0701/036/103					
20150505	1345	1353	>1356	M1.2/SF	.0046	N15E75L133	12339					1400/0311/066/048c	R /1355/012-025				
20150505	1419	1425	>1432	M1.3	.0067	S16E17L194	12335					1412/0286/077/050	R /1424/025-050				
20150505	1706	1724	1750	2N/M2.6	.013	S17E15L194	12335					1924/0183/020/103	R2 /1723/025-050				
20150505	2205	2211	>2215	X2.7	.093	N15E79L139	12339	4500	590	II/2		2224/0715/360/041	R /2212/300-800				
20150506	1145	1149	>1151	M1.9	.0032	N17E67L139	12339	720	34			1212/0738/132/059					
20150611	0849	0855	>0859	M1.0	.0034	S19E83L005	12367					1000/0689/128/075	R /0854/025-050				
20150613	0711	0723	0755	SF/M1.3	.017	N14W78L127	12360						R2 /0713/050-100				
20150614	0052	0059	>0109	M2.0	.014	N14W81L127	12360						R /0104/012-025				
20150618	0033	0127	>0155	M1.2	.040	S16W81L077	12365					0126/1714/195/270	R2 /0127/012-025	18|1435/0016			
20150618	1629	1736	1905	1N/M3.0	.087	N15E50L303	12371	250	2200		IV/2	1724/1305/360/092	R3 /1637/100-300				
20150620	0628	0648	~0734	M1.0/1F	.018	N13E25L303	12371					0643/0584/360/177	R2 /0633/050-100				
20150621	*0102	0142	0434	M2.0/1N	.032	N12E13L303	12371	360	100	II/2	IV/2	0236/1366/360/072	R2 /0128/025-050	22|1900/1070			
20150621	*0206	0236	0434	1N/M2.6	----	N12E13L303	12371	1000	490				R6 /0228/025-050				
20150621	<0924	0944	1031	2B/M3.8	.016	S21W57L005	12367		120		IV/1						
20150621	1810	1820	>1828	M1.1	.0079	S18W65L005	12367						R /1826/012-025	22|1900/1070			
20150622	1723	1823	2053	2B/M6.5	.019	N12W08L301	12371	10000	1000	II/1		1836/1209/360/358	R7 /1816/100-300				
20150625	0802	0814	0905	M7.9/3B	.017	N09W42L301	12371	1000	3800	II/1	IV/1	0836/1627/360/330	R /0848/050-100	27|0030/0022			
20150703	1247	1251	1253	M1.5/1N	.0025	S15E68L092	12378						R /1251/050-100				
20150706	0824	0844	0859	M1.0/SN	.012	N17E42L073	12381						R2 /0829/025-050				
20150706	2032	2040	2050	M1.7/2N	.012	N18E36L073	12381						R2 /2040/025-050				
20150821	0156	0218	0237	M1.2/1F	.022	S16E39L193	12403						g				
20150821	0934	0948	1007	M1.4/2B	.018	S17E26L193	12403	120	73	II/1		1012/0555/270/072	g				
20150821	1910	2034	2050	M1.1/1N	.031	S12E26L193	12403						R2 /2027/012-025				
20150822	0639	0649	0659	M1.2/1B	.010	S15E20L193	12403	330	62	II/2	IV/2	0712/0547/360/095	R /0659/012-025				
20150822	2119	2124	2128	M3.5/1B	.011	S15E15L193	12403					2336/0225/010/195	R /2124/050-100				
20150824	0726	0733	0735	M5.6/1B	.011	S15W04L193	12403	6900	100			0848/0272/088/245					
20150824	1740	1746	>1749	M1.0	.003	s15w11L193	12403										
20150827	0448	0544	0603	M2.9/1N	.042	S14W45L193	12403					0736/0191/022/247					
20150828	1304	1316	1323	M2.2/1F	.016	S14W65L193	12403						R /1311/025-050				
20150828	1856	1903	1906	M2.1/1N	.005	S13W70L193	12403										

D A T E	T I M E			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS		Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20150830	0201	0330	>0423	M1.4	.071	S14W75L193	12403									
20150917	<0928	0934	>0935	SF/M1.1	.0046	S21W04L230	12415									
20150920	0455	0503	>0517	M1.5	.013	N09E83L108	12420						R /0502/025-050			
20150920	1730	1803	1959	2N/M2.1	.045	S20W24L230	12415	140	320	II/1		1812/1239/360/219	R /1815/012-025	20|2045/0003		
20150927	1020	1040	1046	M1.9/1F	.0098	S22W08L106	12422						R /1023/012-025			
20150927	2054	2100	2115	M1.0/1N	.0081	S21W16L106	12422						R /2059/025-050			
20150928	0345	0355	0359	M3.6/SF	.016	S09W67L149	12423	270								
20150928	0727	0735	0746	M1.1/1F	.0085	S22W08L106	12422					0748/0634/118/288	R /0729/006-012			
20150928	1301	1318	1329	M1.1/1N	.013	S22W24L106	12422					1448/0237/076/265	R /1308/012-025			
20150928	1453	1458	>1503	M7.6	.028	S21W26L106	12422		100							
20150929	0311	0316	0331	M1.2/SF	.0026	S08W78L149	12423						R2 /0314/025-050			
20150929	0341	0343	0353	M1.1/SF	.0003	S20W36L106	12422									
20150929	0505	0516	0523	M2.9/SF	.019	S21W37L106	12422	410				0548/0503/031/254				
20150929	0533	0537	0539	M1.2/SF	.0026	S09W82L149	12423						R2 /0537/012-025			
20150929	0553	0556	>0604	M1.0	.0016	S10W80L106	12422						R /0555/012-025			
20150929	0639	0643	0646	M1.4/1N	.0035	S20W34L106	12422					0836/0373/117/351?				
20150929	0846	0851	0855	M1.3/1N	.0067	S10W77L149	12423	200								
20150929	1109	1115	1120	M1.6/1B	.0061	S21W37L106	12422					1336/0164/107/351	R /1114/025-050			
20150929	1920	1924	1927	M1.1/1B	.012	S20W36L106	12422	330				2000/0523/090/247				
20150930	1049	1059	1113	M1.3/1N	.014	S22W46L106	12422						R2 /1054/025-050			
20150930	1318	1320	1321	M1.1/1N	.0016	S23W59L106	12422							01|0000/0001		
20151001	1303	1310	1314	M4.5/SN	.013	S23W64L106	12422						g			
20151002	0006	0013	0017	M5.5/1N	.020	S19W67L106	12422					g(02/00-03/00)	R /0012/050-100			
20151002	1219	1226	>1231	M1.0	.0041	S19W74L106	12422					g	R /1225/025-050			
20151002	1708	1718	>1723	M1.0/SF	.0021	S19W76L106	12422					g	R /1717/025-050			
20151004	0234	0241	>0248	M1.0	.005	S20W90L106	12422						R /0240/025-050			
20151015	2327	2331	>2337	M1.1/SF	.0055	S11E50L162	12434						R /2331/025-050			
20151016	0611	0616	0620	M1.1/SF	.0036	S11E46L162	12434	1000	90			0724/0388/010/030	R /0616/050-100			
20151017	2009	2023	>2028	M1.1	.006	S19E88L122	12437					2136/0186/047/110				
20151017	2035	2042	>2046	M1.5	.006	S18E88L122	12437					2348/0164/044/111				
20151031	1748	1752	>1808	M1.0/SF	.0027	N06E51L316	12443					1836/0312/009/019	R /1752/025-050			
20151104	0320	0326	0334	M1.9/1N	.0052	N15W64L027	12445	56000	220	II/2		0412/0516/343/021	R /0325/050-100			
20151104	1155	1203	>1219	M2.5/1N	.0073	N12W73L027	12445	3600	28	II/1		1236/0460/064/278	R /1202/100-300			
20151104	<1327	1352	>1413	M3.7/2B	.059	N09W04L316	12443	1400	340	II/2	IV/1	1448/0701/360/288	R /1342/050-100			
20151109	1249	1312	>1510	M3.9/2B	.047	S11E41L207	12449			II/2		1326/1041/273/137	R /1311/025-050	10|0020/0004		
20151221	0052	0103	>0111	M2.8	.019	N04E90L329	12472			II/1		0127/0389/071/116	R /0113/012-025			
20151221	1009	1019	>1032	M1.1/1N	.010	N04E85L329	12472					1048/0405/051/117				
20151222	0315	0334	>0348	M1.6/SF	.021	S23E75L332	12473	120				0348/0382/029/111	R /0323/025-050			
20151223	0023	0040	>0052	M4.7/1F	.049	S22E63L332	12473	500		II/2	IV/2	0126/0544/089/110	R /0035/050-100			
20151224	0149	0212	>0222	M1.1	.013	S22E50L332	12473						R2 /0210/025-050			
20151228	1120	1245	>1409	M1.8	.110	S20W10L332	12473	470	370		IV/1	1212/1212/360/163	R /1201/006-012	29| ~01/0003		

2016

D A T E	T I M E			CLASS		COORDINATES	AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS		Attendant
y m d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt lg L		245	2695 sfu	RADIO	SWEEP	to / v /da / pa km/s	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE n	phenomena
20160101	2310	0011	>0101	M2.3	.110	S20W73L332	12473			II/1		2324/1730/360/227	R /2344/006-012	02|0450/0021		
20160212	1036	1047	>1053	M1.0	.0058	N11W14L089	12497						R /1045/025-050			

DATE y m d	TIME to	TIME tm	TIME te	CLASS IMPORTANCE X-ray/opt	IF J·m^{-2}	COORDINATES lt lg	L	AR	RADIO MHz 245	RADIO MHz 2695 sfu	DYNAMIC EVENT RADIO SWEEP	CME to / v km/s	CME /da / pa	X-ray hard An / tm / Emax, keV	PROTONS E>10MeV D	PROTONS E>10MeV |tmax/Ipr	GLE	n	Attendant phenomena
20160213	1516	1524	>1550	M1.8/1B	.0043	N13W25	L089	12497						R /1533/025-050					
20160214	1918	1926	>1929	M1.0/SF	.004	N15W47	L089	12497						R /1924/006-012					
20160215	1041	1100	1159	M1.1/1N	.007	N10W52	L089	12497				1148/1083/022/287		R2 /1047/050-100					
20160418	0014	0029	>0102	M6.7/1F	.049	N12W62	L344	12529	150	120	II/2 IV/2			g					
20160721	0042	0046	>0050	M1.2	.004	N03W42	L165	12567	100										
20160721	0134	0149	>0204	M1.0	.012	N02W42	L165	12567											
20160723	0146	0211	>0223	M5.0	.054	N05W73	L165	12567	140			0236/0270/038/275							
20160723	*0500	0516	>0524	M7.6/3B	.046	N02W74	L167	12567	660	310		0524/0835/117/271		R /0504/006-012					
20160723	*0527	0531	0533	M5.5/3B	.011	N02W74	L167	12567	1400	900	II/1 IV/2								
20160724	0609	0620	0632	M2.0/SF	.017	N03W84	L167	12567						R /1618/050-100					
20160724	1730	1743	>1812	M1.9	.036	N07W89	L168	12567				1824/0244/010/277		R /1738/100-300					
20160807	1437	1444	>1448	M1.3	.0046	N09W67	L321	12572				1524/0986/029/239		g					
20161129	1719	1723	1736	M1.0/SN	.002	S07E55	L139	12615						R2 /1728/100-300					
20161129	2329	2338	>2340	M1.2/SF	.004	S08E52	L139	12615						R /2306/100-300					

2017

DATE y m d	TIME to	TIME tm	TIME te	CLASS IMPORTANCE X-ray/opt	IF J·m^{-2}	COORDINATES lt lg	L	AR	RADIO MHz 245	RADIO MHz 2695 sfu	DYNAMIC EVENT RADIO SWEEP	CME to / v km/s	CME / da / pa	X-ray hard An / tm / Emax, keV	PROTONS E>10MeV D	PROTONS E>10MeV |tmax/Ipr	GLE	n	Attendant phenomena
20170401	2135	2148	2240	M4.4/1F	.046	N16W53	L054	12644	570		IV/3			R /2134/050-100					
20170402	0750	0802	0946	2N/M5.3	.044	N12W59	L054	12644	100		II/1 IV/1	0824/0868/078/292c		R2 /0742/025-050					
20170402	1252	1300	>1311	M2.3	.016	N14W63	L054	12644		110				R /1318/025-050					
20170402	1818	1838	>1928	M2.1/SF	.061	N16W68	L054	12644	230			1924/0405/084/289c		R3 /1807/006-012					
20170402	2026	2033	>2038	M5.7	.022	N16W70	L054	12644	670			2212/0762/012/293c							
20170403	0056	0105	>0112	M1.2/SF	.0082	N15W75	L054	12644						R /0045/006-012					
20170403	1415	1429	1454	2N/M5.8	.031	N19W80	L054	12644	6800	100	II/2 IV/1			R /1422/100-300					
20170703	1537	1615	>1618	M1.3	.004	N03W89	L314	12664		140		1724/0256/040/267		R /1731/012-025					
20170709	0304	0318	0353	2N/M1.3	.013	S08E37	L111	12665				g		R2 /0340/050-100					
20170714	0107	0209	0455	M2.4/1N	.13	S06W29	L111	12665		130	IV/1			R5 /0314/100-300	14	0900/0022			
20170820	0136	0152	>0203	M1.1	.011	N06E89	L225	12672						R /0157/100-300					
20170904	0536	0549	0629	M1.2/1F	.015	S10W04	L117	12673						R /0601/006-012					
20170904	*1343	1530	<2359	3B/M1.5	.006	S06W13	L117	12673	130	100				R /1526/006-012					
20170904	*1805	1822	>1831	M1.0/3B	.011	S07W11	L117	12673				1912/0624/288/333c							
20170904	*1846	1937	>1952	M1.7	.045	S09W10	L117	12673			IV/1	1912/0874/016/235c		R2 /1903/026-050					
20170904	*1959	2002	>2006	M1.5	.004	S16W14	L117	12673				1912/1077/012/263c							
20170904	*2028	2033	>2359	3B/M5.5	.018	S11W16	L117	12673				2048/0803/014/244c		R /2143/050-100	08	0035/0844			
20170904	2210	2214	>2219	M2.1	.008	S09W12	L117	12673				2324/0578/018/226c							
20170905	0103	0108	>0111	M4.2	.010	S09W14	L117	12673				0136/0610/012/237c		R /0101/006-012					
20170905	0342	0351	>0404	M1.0	.011	S09W15	L117	12673						R /0400/006-012					
20170905	0433	0453	0507	M3.2	.051	S11W18	L117	12673			IV/2	0524/1227/006/242		R /0406/006-012					
20170905	0633	0640	0643	M3.8	.010	S11W18	L117	12673						R /0643/006-012					
20170905	1737	1743	1830	M2.3/1N	.012	S09W24	L117	12673				1812/0488/028/161		R2 /1755/100-300					
20170906	*0852	0910	>1553	2B/X2.2	.130	S07W33	L117	12673	410			1000/0419/042/252		R2 /1123/100-300					
20170906	*1153	1202	>1553	X9.3/2B	.570	S08W33	L117	12673	3200	14000	II/2 IV/2	1212/0978/360/001c		R6 /1208/100-300					
20170906	1551	1556	1752	M2.5/3N	.014	S09W38	L117	12673						R3 /1606/100-800					
20170906	*1921	1930	1935	1F/M1.4	.009	s08w38l	117	12673						R /1915/100-300					
20170906	*1753	2339	>2359	1F/M1.2	.005	S07W44	L117	12673				2124/0495/020/235c		R14/2301/100-300					
20170907	0459	0502	>0547	M2.4/1F	.007	S07W45	L117	12673						R /0500/100-300					

DATE			TIME			CLASS		COORDINATES			RADIO MHz		DYNAMIC EVENT		CME	X-ray hard	PROTONS			Attendant
y	m	d	to	tm	te	IMPORTANCE X-ray/opt	IF J·m^{-2}	lt	lg	L	AR	245	2695 sfu	RADIO SWEEP		to / v km/s	/da / pa	An / tm / Emax, keV	E>10MeV D |tmax/Ipr	GLE	n	phenomena
20170907			<0935	0954	>1128	1N/M1.4	.004	S08	W47	L117	12673	25000	260		IV/2	1024/0488	/018/488c	R2 /0959/100-300				
20170907			1011	1015	>1018	M7.3	.014	S07	W46	L117	12673	91000	810		IV/2	1136/0388	/014/260c	R /1008/100-300				
20170907			1420	1436	1455	X1.3/2B	.120	S11	W49	L117	12673	670	1600	II/1		1524/0449	/050/244c	R /1455/100-300				
20170907			2350	2359	0110	M3.9/2B	.036	S09	W50	L117	12673				IV/2			R /2351/006-012				
20170908			0219	0224	>0229	M1.3/1F	.004	S09	W54	L117	12673					0417/0629	/028/251c					
20170908			0339	0343	>0345	M1.2/SF	.002	S06	W55	L117	12673	15000				0428/1080	/038/270c	R /0329/012-025				
20170908			0740	0749	0913	M8.1/2B	.047	S10	W57	L117	12673		69					R /0750/100-300				
20170908			1509	1547	1608	M2.9/1N	.053	S08	W68	L117	12673	450						R2 /1512/100-300				
20170908			2333	2345	>2356	M2.1	.017	S08	W69	L117	12673				IV/1			R /2328/100-300				
20170909			0414	0428	>0443	M1.1/SF	.013	S13	W69	L117	12673					0524/0355	/018/271c	R /0413/100-300				
20170909			1050	1104	1239	M3.7/SF	.071	S14	W74	L117	12673	100						R2 /1049/100-300				
20170909			2204	2353	0041	M1.1/SF	.069	S07	W74	L117	12673		450	II/2	IV/2	2312/1077	/104/275c	R3 /2236/100-300				
20170910			1535	1606	1631	X8.2	.400	S08	W90	L117	12673	670	1900	II/1	IV/2	1648/2013	/360/144c	R2 /1553/100-300	10|1630/1490	GLE		LPS
20171020			2310	2328	>2337	M1.1	.009	S12	E88	L128	12685	110		II/1				R /2311/100-300				